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Rail-Road News.

For the Scientific American.

Laws of Railroads.

We (Locomotive Engineers) feel ourselves aggrieved and oppressed, by certain enactments passsed by the legislatures of New York and Connecticut. By the former, passed by the session of 1850 and 1851 (if I mistake not), railroad companies are made liable to fines if their engineers neglect to ring the bell or sound the whistle of their locomotive at all level road crossings, and if any damage is caused by such neglect, the engineer is held responsible for half the amount. By the latter body, a law has recently been passed, and by its provision a fine of $25 is imposed on the engineer for each neglect of the duty referred to above, and if the company that employs him retains him in their employ after two convictions of such neglect, they render themselves liable to a penalty of $500. And in addition, the engineers are obliged to take oath before some competent officer, that they will obey this law, if not, the companies render themselves liable to a penalty by keeping them in their employ.

It is by this latter clause we feel ourselves the most oppressed, if not literally proscribed; is not the penalty attached to the neglect sufficient? without making a man swear to perform that, which circumstances may render it impossible for him to do: and thereby perjure himself.

Certainly those who passed this law knew very little of the difficulty of complying with its requirements, especially on railroads where there are more level crossings than the roads have miles in their length.

We are willing to do all that our employers or Legislators can reasonably demand of us, but I would ask if these last enactments do not evince a desire to make us the scape-goats for all railroad laws of whatever nature.

Had the legislature required railroad companies to place a bell or whistle upon their engine to be operated by the engines whenever in motion, there would have been some appearance of justice; but to make it imperative on the engineer to operate them by hand when he has a thousand other things to occupy his care and attention, is, to say the least, asking a little too much.

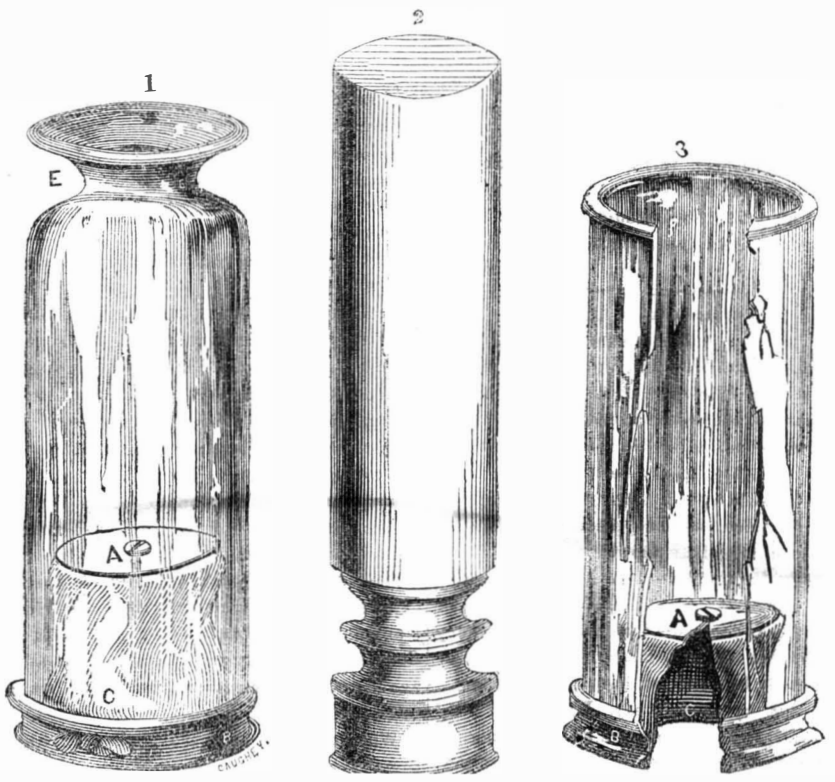
Were the public aware of the difficulties we have to contend with, it would be less severe in its censure when accidents occur, and did our rulers know where the evil of the system lies, their enactments would not be quite so hard on the ENGINEER.

New York, July 30th, 1851.

Silk Cocoons.

It was, say the Chinese annals, the wife of the Emperor Hoangti who first engaged in spinning the cocoons, which are naturally found in trees.

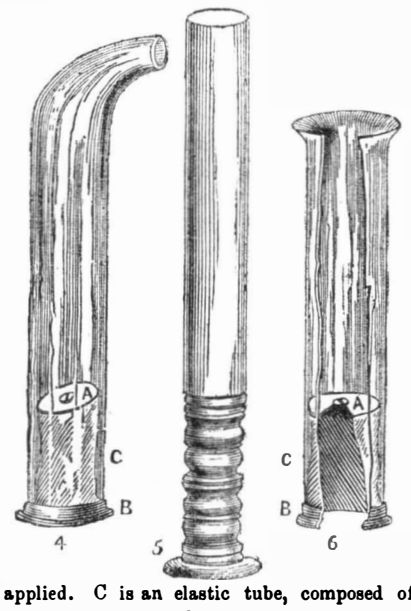
THOMAS' AMERICAN MECHANICAL LEECH, CUPPING, AND BREAST GLASSES.



The accompanying engravings represent some of the different instruments for the purposes indicated by the caption of this article, but they are all upon the same plan. They are the invention of Mr. Wm. S. Thomas, of this city.

Figure 1 is a Breast Glass; figure 3 is a Cupping Glass; figures 4 and 6 are leeches of different forms, (figures 3 and 6 are sectional views). The same letters refer to like parts.

The body of the instrument is formed of a glass tube, the size of which is regulated by the amount of blood to be extracted, it may be of any convenient form, to adapt it to the part of the human body to which it is to be



applied. C is an elastic tube, composed of vulcanized india rubber; one extremity of this tube is turned over the lip of one end of the body of the instrument, and secured by a cord, B. The other extremity of the tube is connected between two metal discs, A, and made fast by tightening the screw. This tube does not fit closely in the glass, but moves free. The breast glass, figure 1, is contracted at E to fit the nipple. In order to use instruments of this description, a plunger, figures 2 and 5, is provided, whose diameter is slightly less than that of the piston or tube. When the instrument is to be applied, the plunger is inserted in the end of the instrument at B, and is pressed down forcibly, until the elastic tube is extended to the other end of the instrument, or nearly so. When thus extended, it is applied to the human body, the skin of which has been previously cut with a proper instrument, for leeches and cupping glass, and while the instrument is held against the body, the pressure upon the plunger is relaxed. As the pressure is relaxed, the elastic tube, tending to contract to its original dimensions, draws the plunger with it, and thus creates a partial vacuum in the instrument, and sucks the blood into it (or the milk into a breast glass). In leeching and cupping glasses, as soon as one is made fast, the operator removes the plunger, which may be used to apply others while the first is filling. It will be perceived that the suction is dependent upon the perfectness of the vacuum in the instrument and the elasticity of the tube. If the fluid is to be sucked rapidly, the elastic tube is depressed to its lowest limit, in the body of the instrument, to expel the greatest quantity of air, and thereby form the best vacuum which the instrument is capable of producing. If, on the other hand, the blood is to be drawn gently, the elastic tube is not depressed to its full extent, and consequently a quantity of air is left in the body of the instrument, which, expanding as the tube collapses, impairs the vacuum, and diminishes the suction.

A letter has been addressed to us by Dr. H. K. Bellows, of Norwich, stating that he has thoroughly tested the cupping instrument and artificial leech in his practice, and they have answered so well that he decidedly expresses himself as having formed the opinion that they promise to supersede everything of the same kind now in use. "The instruments in use at present," he says, "are very complicated and have to be used with great care and require constant repairs. They are also bulky and inconvenient, at least for country practice. This leech of Mr. Thomas admits of application in all situations, with the same facility as the natural leech, with no possible danger from hemorrhage or poison of the leech bite—the natural leech can be entirely dispensed with." These instruments can be seen at No. 6 Wall street, this city, room No. 15.

Oat Meal as Food.

The Scientific American, the best mechanical paper we ever saw, mentions the fact, that oatmeal is used in Scotland, as food for man; and then makes this observation, that "It is a food which would not be much relished in America where flour is so cheap."

Now, in the vicinity of Pittsburgh, there has long been one mill for grinding oats for table use; and several years ago a second was put in operation, and now, we believe, there are several. Those who have used this in Pittsburgh, are highly pleased with it; and it sells for nearly as much as flour. We can also assure our worthy brother, that we received much pleasure in partaking of oat cakes, within the last year, while on a visit to a relative in Pennsylvania, who had it on the table every meal; and yet it had been twenty years since we had tasted it before. We can also testify to its being one of the healthiest articles of diet to be found, and feel warranted in saying that were it more used, there would be less liver complaint and dyspepsia.—[Aberdeen (Ohio) Courier.

[We agree with our worthy cotemporary, in all that he says, we merely alluded to the expressions we have frequently heard used by people here, who have purchased the oat meal sold in our shops to try it. The taste of it is musty; this may be owing to its age. There is more muscle matter in oats than wheat, and we can relish a *bannock*—"a good oat meal bannock"—as well as any son of the mountain heath. The oats grown in this part of the country are not adapted for making the meal, but were there good oats and good meal made here, we would perhaps use it as an article of diet, and so would many others after some practice, on account of its real worth; at present no good oat meal can be got in this city.

India Rubber for Preserving Water Pure.

The editor of the Boston Medical Journal, who has just returned from an extensive journey in the the East, states that in those tropical regions where it was necessary to transport water, he found that river water placed in an india rubber bag, and securely corked, remained, at the end of six weeks, perfectly sweet and good, while water carried in the whole skin of an animal, as is the custom in that country, became excessively offensive, in the desert, in a few days, besides assuming the color of a pale decoction of coffee. In wood-casks, another method adopted by travellers the changes wrought on the water are analogous to those observed in water tanks at sea.

Manufacture of Porcelain.

A San Francisco paper announces that several gentlemen in that city have resolved to make the experiment of manufacturing porcelain out of the immense quantity of powdered quartz which is to be obtained in the mining districts. The labor of the Chinese, who are daily flocking to California, it is thought, can be advantageously employed in this business.

What a place for the manufacture of crystal. California is a great country, gold and crystal are certainly precious minerals. Is there any coal there? that is the next important question.

One End.

Sound philosophy and revealed religion are naturally connected with each other. However widely they may differ as to the manner in which they may severally proceed, they are both tending towards one common object, the establishment of truth. Philosophy sets out in its pursuit of this object from the lowest point—religion from the highest; the former beginning with the last effect, the latter commences with the first cause.

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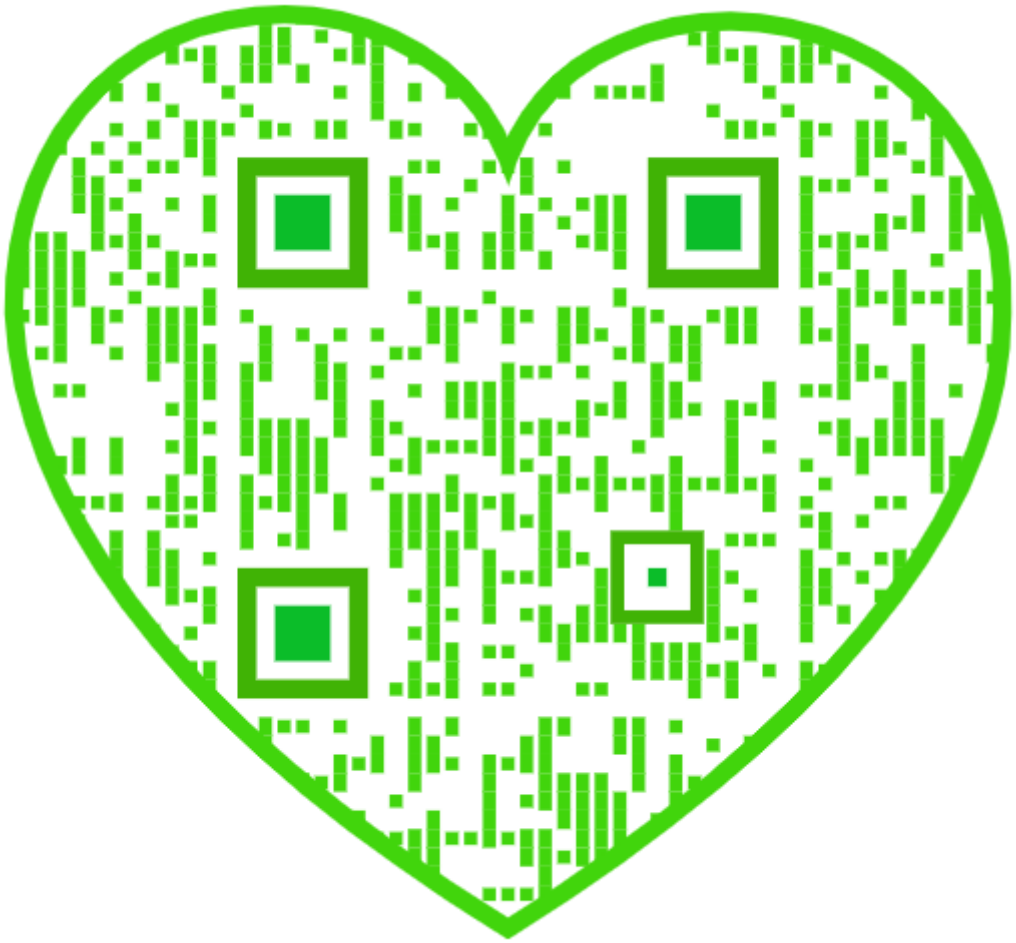

Miscellaneous.

Special Correspondence of the Scientific American.

London Matters of Gossip Connected with Science, Art, and the Great Exhibition of Industry.

LONDON, July 18th 1851.

It seems almost incredible, when the number of visitors is considered, that have, since the opening, passed into the maw of the monster, and still more surprising is the amount of money received for these admissions. If the calculation had been made previously, that so many thousand shillings would be received, day after day, the sanguine computator would decidedly, in this instance, have been called a noodle; but time has shown how wrong we might have been, and proved conclusively that a fraternity has sprung up between nations in consequence of the Exhibition, which otherwise and ordinarily could not have occurred. We may, perhaps, exempt the United States as a single exception. From the scantiness of her display, which is undeniable, and no attempt is made to disguise the truth, certain sneers have been called forth, and the blindly selfish portion of the English press have made this a handle for reproach, without considering the reasons of this deficiency. They forget or affect to forget that our nation, unlike almost every other in Europe, made no provision of funds in order to carry out what should have been a national duty, or, to say the least, *pride of competition*. This is the prime cause, and that which most tends to raise the finger of sarcastic reproach against the American department. We have read what the French say and they laugh at the "greatest nation on earth." The Germans say that they expected better things, and an article in a Spanish journal was shown us the other day, which appeared to have come from a correspondent, in which he states that "he regretted to say that the nation that fell farthest short of his expectations, was the American, and from that he anticipated a great demonstration;" and, he adds, "In the name of Santa Maria, what is the reason of this?" We sincerely wished it laid in our power to enlighten him and his readers.

In a previous letter we alluded to the respectful conduct of the shilling visitors, who form the great masses of the United Kingdom. So courteous and well-behaved have they been, that, on a recent occasion, when her Majesty was present, she took occasion to speak of it in terms of the warmest commendation. Of course you well know that the royal family are daily visitors, and we are afraid that, on the fine shilling days, when good-breeding is of course looked for, the least is exhibited towards the distinguished guests. Their curiosity is more importunate and vulgar than that of their less polished brethren. A London journal, speaking of a visit of her Majesty, on a recent shilling day, thus remarks: "It was a glorious sight to see some twenty thousand people, chiefly agriculturists, artisans, and mechanics, quietly and good humoredly arranging themselves in lines down the nave of the Crystal Palace, so as to form an avenue through which their Queen, attended only by a few of the royal commissioners, passed as quietly as if she had been enjoying a walk in the gardens of Buckingham Palace."

The Russian collection has also been considerably augmented by the addition of a series of plates on the antiquities of this vast country, portraying its civil, military, and ecclesiastical customs.

Saxony has sent a number of additional curiosities in the way of tortoise-shell cabinet tables inlaid with brass and silver.

Nine hundred "blue coat boys"—a charity school—were in the Exhibition a few days ago. The poor children, with their comical labels, seemed to enjoy the sights highly.

We are gratified in being able to state that all of the charity schools in London will visit the Exhibition *free* before it closes.

The lectures in the Palace have failed: people like attractive *practice* when they will not listen to dry *theory*.

The following is a copy of a petition which it has been suggested should be presented to the House of Commons, with the view of preserving the Crystal Palace as a Winter Garden:—

"To the Honorable the Commons of the United Kingdom of Great Britain and Ireland in Parliament assembled. The petition of the undersigned, humbly showeth,—That your petitioners, in common with a large number of persons, have derived the utmost gratification from the Crystal Palace, and believing that its continuance as a winter garden would be well calculated to afford a most important and interesting means of enjoyment, approach your Honorable House to give expression to their prayer that the building may be retained in its present site as a self-supporting winter garden. Your petitioners further pray that its advantages may be placed within the reach of all; for which purpose it should be opened to the public four days in the week, at a charge of one penny to each person on entry. Your petitioners, therefore, pray that your Honorable House will, without delay, pass such an act as shall secure the object herein specified. And your petitioners will ever pray." H. H. P

For the Scientific American

The Teeth.

I find in the Scientific American of the 26th of July, the following extract from one of your exchanges, with editorial comments:—"Pleasant Application to the Teeth:"—"It is a fact, but not generally known that the common strawberry is a natural dentrifice; and that its juice, without previous preparation whatever, dissolves the tartareous incrustations on the teeth, and **makes the breath sweet and agreeable.**" Your remarks on the above are, "that you cannot vouch for the accuracy of the fact set forth, but it is something that can easily be tested, without sacrifice or fear." Can this be as you say, Mr. Editor? My knowledge of the structure and formation of the teeth tell me otherwise you remark that the application of the strawberry "can be easily tested without sacrifice or fear;" if so, then can any acid." The teeth are composed of phosphate and carbonate of lime and animal matter. Tartar is composed principally of phosphate of lime and animal matter. Will not, then, any acid that will destroy the one destroy the other? Hence you will readily see that if the strawberry will act in such a manner as that it will, by application, destroy tartareous incrustation, it will, in like manner, act upon the structure of the teeth. It has been found, by experiment, that all mineral and vegetable acids readily act upon the bone of the teeth. Hence we see how necessary it is that the greatest cautionshould be used to keep substances that possess such properties from being applied to the teeth. I have no doubt, as your exchange remarks, that the juice of the strawberry will dissolve the tartareous incrustations upon the teeth. This berry, like all fruits, contains acid; hence the effects produced. But that it can be easily applied without sacrifice or fear, I would beg leave to dissent from. Tartar should be removed by properly constructed instruments, such as dentists possess, and not by any agent the application of which will dissolve it. After the tartar is properly removed by instruments, it can readily be kept off the teeth by the frequent application of a good brush and simple dentrifice.

I offer the above remarks for the benefit of those of your readers who might otherwise, through ignorance of the effects of acids upon the teeth, be tempted to employ the article as mentioned by your exchange.

G. F. J. COLBURN, Dentist.

Newark, N. J., July 28, 1851.

[Although we perfectly agree with what friend Colburn says respecting the use of acids as a dentrifice, still we cannot agree with him respecting our remarks, because we have no evidence that the juice of a strawberry, taking the ripe strawberry itself, as stated, is an acid so dangerous to the teeth that we, at least, would be afraid of any disagreeable consequences in testing its qualities. The most of our vegetable juices do not become corrosively acidulous until they imbibe, by exposure, a quantity of oxygen from the atmosphere. If the rubbing of strawberries over the teeth be dangerous, and should not be performed, then this proves too much, for, upon the same principle of reasoning, it would be dangerous to eat strawberries.

City Railroads.

The Mayor of our city has signed the joint resolutions adopted by the Common Council, at their last regular session, providing for the construction of railroads in the Sixth and Eighth Avenues. It was supposed by many that the Mayor would not sign the resolutions, but we are very glad that he has.

A double track is to be laid from a point at the intersection of Chambers street and West Broadway, thence through West Broadway to Canal street, down Canal street to Hudson street, at or near fifty-first street; and that said railroads be continued through the Eighth avenue to Harlem river whenever required by the Common Council, and as soon and as fast as said avenue is graded; such track, or tracks, to be laid under the direction of the Street Commissioner, &c.

The other track of railroad is to be laid as follows:—

A single railroad track, commencing in Murray street, within fifty feet of Broadway, thence through Murray street to Church street, through Church street to Canal street, and through Canal to Wooster street, through Wooster street to Fourth street and Sixth avenue to Harlem; also, to lay a single track in Thompson street, from Canal street to Fourth street; and a single track in Canal street, from Wooster street to West Broadway to connect with the Eighth avenue railroad; and extend the same up the Sixth avenue to Harlem river whenever required by the Common Council, and as soon and as fast as said avenue is graded sufficiently to permit such track to be laid.

When these two railroads shall have been completed, there will be in operation three distinct railroads, extending from the vicinity of the Park to Harlem river, viz.: the Sixth and Eighth avenue roads on the west, and the Harlem railroad, running near the centre of the island.

Daguerre is Dead.

The last accounts brought the intelligence that M. Daguerre, who is recognised as the discoverer of sun painting, and after whom the Daguerreotype art is named, died on the 12th of last month (July) at a village near Paris, where he was spending the summer season. His death was sudden, and occurred at the time, it is said, when he was giving the last touch to several works of value. He was 65 years old. The first man who announced that "no substance can be exposed to the sun's rays without undergoing a chemical change," was M. Niepce, of Chalons, now the son-in-law, we believe, of Daguerre. When the metal tablets of Daguerre, on which were painted with a sunbeam the forms of the fair, the brave, and the gay, were first announced to the world, the public were filled with wonder. We think but little of the discovery now, but it is one of the grandest discoveries of modern times, and the end of improvements on it is not yet at hand. Daguerre was paid a handsome sum by the Government of France for his discovery, and it was given to the public He was blamed, however, for selling the discovery to an Englishman, who patented it. It never was the subject of a patent in America, and it should not have been in England, as the inventor was paid for giving it freely to the world as a benefit to science.

Separating the Iron Ore by Agitation.

In Northern New York, the stone is separated from pounded mountain ore by a better process than the use of magnets, to wit:—

The pounded ore is agitated vertically about 150 times a minute, while under water, in a seive. The stone rises to the top, the fine ore passing through a seive; while rising the coarse ore closes the holes of the seive.

C. RICH.

Port Henry, N. Y.

Fair of the American Institute.

The twenty-fourth Annual Fair of the American Institute is to be held at the Castle Garden, New York, in October next, for the reception and exhibition of goods, specimens of agricultural productions, and machinery. Articles will be received on the 27th, 29th and 30th days of September, and the fair will open on the 1st of October. The anniversary address will be delivered on the 16th of October, by Dr. Charles T. Jackson, of Boston.

Illustrated Inventions.

MESSRS. EDITORS—The Patent granted me for my machine for separating flour from bran, dated July 22, came safely to hand, for which receive my thanks for the prompt manner in which you attended to making application for the same. Since I had my machine illustrated in the Scientific American I have had several millers call to see it in operation and examine it for themselves; they were free to admit that they would not have credited the amount of flour saved to the miller, if they had not satisfied themselves by an examination. I have also received letters from various parts of the country, in which I had no idea your paper circulated: I have received them from the far South, and the extreme outskirts of the Western States. Yours truly,

L. W. KIRK.

Coatesville, Chester City, Pa., July, 1851.

The Atlantic Steamship.

This noble steamship arrived at her wharf in this city, on last Sunday morning, after a quick passage of 10 days 18 hours from Liverpool. This is the first passage she has made since her unfortunate accident last January. There was quite a heart-stirring enthusiasm manifested among our citizens on her arrival. Her repairs were superintended, we believe, by the famous old house of James Watt, at Soho. She has been refitted and greatly improved. Long may she "walk the waters like a thing of life."

Chinese Progress.

The Hongkong Register states, with much gratification, that the Chinese residents in that city have begun to allow their ladies to enjoy social intercourse with the wives and daughters of barbarians:—"We have learned that on Tuesday last, several English ladies were introduced, at the residence of Howqua, to the ladies of his establishment, and that on Friday a return visit was made by the Chinese ladies. This is the first time that any Chinese ladies have been within the foreign dwellings; and, from all accounts, they were highly delighted with the welcome greeting they met, and after much social chit-chat took their leave, promising at an early date to renew an intercourse from which they had derived so much pleasure."

Singular Movements of Lake Michigan.

The Chicago Journal of Saturday says:—Lake Michigan was playing its antics again all day yesterday, the water rising from two to four feet every half hour, or so, and as suddenly receding. At dusk, while the Lake was as smooth as a mirror, without wind or any apparent cause, the water rose to the height of four feet within an hour. "What has caused this great commotion" with old Michigan, is a mystery. It is certainly very unaccountable.

The Justice of a Sultan.

In the city of Allepo, where the Christians are weak in numbers, a Turkish mob (unknown to the Government) produced the death of five, the wounding of six more, and the pillaging of one hundred houses and five churches. The Sultan shot six hundred of the mob, condemned three hundred to the galleys, and put one hundred and fifty more on trial. He has restored all the property he could recover to the Christians to whom it belonged, and recompensed the rest of the sufferers out of his own purse.

The Koh-i-noor, or Mountain of Light, has been removed from its strong iron cage in the crystal palace, and an artificial *gem* substituted. The groundlings gaze on a piece of glass, now believing it to be the famed brilliant which once blazed on the head of the Great Mogul. Crowds come around the case every day, and with great admiration gaze upon the fictitious "Mountain of Light."

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Tanning and the Tanning Woods of America.

We request the attention of our readers to the following letter of Dr. Reid, of Rochester, N. Y., to Dr. Gale, of the Patent Office, respecting the Art of Tanning, and the woods or vegetable substances which are used, or might be used in the processes.

DR. GALE—Dear Sir: As a chemist interested in the discovery of new chemical facts, and as an American citizen in the developement of all branches of industry of our common country, permit me to call your attention to the following remarks and suggestions.

For two years and a half past I have been engaged, more or less of the time, in the investigation and developement of an improved system of tanning, founded, as I flatter myself, upon a more correct knowledge of the chemical affinities and qualities of the various substances used and of the processes employed in making leather.

The art of making leather embraces two species of operation, viz., the chemical and mechanical: the first includes all the changes produced in the raw hide, by means of other substances applied to it, till it becomes leather. The second, all the physical labor expended upon it, whether by manual tools or machinery. The first is by far the most essential and important, and yet it is that which is least understood by practical tanners. For the want of chemical knowledge they are, in a great degree, incapable of understanding and appreciating the chemical phenomena daily passing before their eyes; hence improvement in the art of leather-making has been very slow; and those improvements which have been attempted belong chiefly to the tools and machinery employed. Very few tanners have ever ventured upon an improvement in the chemical branch of their art; and when they have, their supposed inventions or discoveries were in direct contradiction of chemical laws, and of course were impracticable and soon abandoned: as, for instance, patents have been taken out for the use of potash and soda ash, dissolved in the tan liquor or ooze One man, a few years since, actually obtained a patent for the suspension of bags of ashes in the tan vats. If he were a tanner he must have known, what every practical tanner knows, that lime, remaining in the hide, prevents the process of tanning, besides making bad leather; but he did not know that lime and potash were both alkalies, and that tannin was an acid, and that alkalies and acids neutralize each other, and therefore, for his purpose, incompatible, or he never would have made such an absurd mistake.

For the last fifty years, nearly all the improvements, real or supposed, that have been patented, were chiefly for tools or machinery, for the purpose of expediting the mechanical labor necessarily employed, but the discovery and improvements which I have been investigating appertain solely to the chemical processes of tanning. They were first proposed by Harmon Hibbard, to whom Letters Patent were granted, as you are already aware; and with which improvements, and the chemical principles on which they are founded, you are familiar, having given them a careful and patient examination pending his application for a patent. But it is not my purpose to discuss these topics now, and I will dismiss this part of my subject by a quotation from Dr. Ure, and by offering a remark or two thereon.

In his Dictionary of the Arts, Dr. Ure says, "Various menstrua have been proposed for the purpose of expediting and improving the process of tanning; among others, lime-water and a solution of pearl-ash; but these two substances form compounds with tannin, which are not decomposable by gelatine; it follows that their effects must be prejudicial. There is very little reason to suppose that any bodies will be found, which, at the same time that they increase the solubility of tannin in water, will not likewise diminish its attraction for skin."

Now the very objects here supposed by Dr. Ure to be unattainable, are literally and perfectly accomplished by Hibbard's method, viz., a menstruum has been found "for expediting and improving the process of tanning," and that, too, by "increasing at the same time both the solubility of tannin and its attraction for gelatine or skin;" by means, also, so simple, direct, and obvious, that it is wonderful that so learned a chemist as Dr. Ure should not himself have made the discovery.

But I come now to the principle object in view in this communication.

During the experiments and investigations above alluded to, my attention has been directed to two important branches of the manufacture of leather.

First. The chemical principles involved in the several processes of making the various kinds of leather, whether it be in "tawing," as in making kid-glove leather, or in oil dressing, as in making buck-skin and chamois leather, or in tanning proper, as in making morocco, upper, and sole leather.

Second. The various species and qualities of the tannin materials used, viz., the bark of hemlock, several varieties of oak, American and Sicily sumac, and terra japonica: these embrace the chief kinds used in this country.

It is to this latter—the materials for tanning—that I wish more particularly to call your attention.

We greatly need both a qualitive and quantative analysis of the several kinds of substances used for tanning, especially of the hemlock bark—of the white, black, red, Spanish chestnut, oak, and other varieties of the Quercus; also of the American and Sicily sumacs, and of catechu or terra japonica. We have many native trees and shrubs, of whose barks an analysis might prove to be something more than mere scientific curiosities.

A writer in one of our scientific journals asserts that the bark of the chesnut contains more tannin than oak, and more coloring matter than logwood of equal weights and qualities. On what authority he makes this statement, I know not, but if the fact be so, it should be established and known.

I am not ignorant that Sir Humphrey Davy and other distinguished foreign chemists have investigated this subject to considerable extent, but the barks and substances examined by them were not our indigenous products; besides, since their day, better and more accurate methods of analysis have been discovered, so that even their experiments need revision, and many of their conclusions may need correction.

According to Sir H. Davy, terra japonica contains about 54 per cent. of tannin, and is equal, in tanning properties, to 6 and 7 lbs. of English oak bark and to 3 lbs. of Sicily sumac. The tanners of this country consider American sumac as possessing only half the amount of tannin of the foreign and imported article; and it is worth only half as much per ton: hence it would require 6 lbs. of it to equal 1 lb. of terra japonica or catechu, and is, therefore, equal in tanning to English oak bark. But the hemlock of this country has probably double the amount of tannin that the white oak of the Northern States has; hence it holds a middle rank between Sicily sumac and terra japonica, and would consequently require 4 or 5 lbs. of it to equal one of the latter.

But the quality of the tannin, or rather the quality of the leather produced by these different kinds of tanning materials, is a matter of quite as much importance as the relative or absolute quantity of tanning contained in each of them. While terra japonica possesses the greatest quantity of tannin, it is considered as producing the most inferior quality of leather. So hemlock, which, excepting the Sicily sumac, possesses the next highest quantity, produces the next worst quality of leather; while the oaks, which are the lowest in the scale of quantity, afford the most superior in quality. And although the American and Sicily sumachs may be considered to be on a par with the oaks, as to quality, yet the same law, seems to hold with respect to each other, that is, the American sumac, which possesses only about half the amount of tannin, makes a better quality of leather than the Sicily sumac.

Now *pure* tannin is probably the same in all cases, then why this great diversity of quality in the leather? A careful chemical analysis of the substances used, would determine the question; but, in the absence of such analysis, we readily and perhaps correctly conjecture, that very different vegetable gums, resins, acids, extracts, &c., must be combined with the tannin in these several tanning materials, which being also soluble in water, combine in some way with the gelatine of the hide as well as the tannin, and become fixed, although none of them could alone be made to unite thus permanently with the hide. It becomes, therefore, a matter of much importance to the tanner to know what these several vegetable products are which are combined with the tannin of each species of bark, or substance used for tanning, and, as they are not merely useless, but injurious, to know how, if possible, he may get rid of them. Among these products, there is in hemlock bark a large amount of resin or pitch, a small portion of which, however, is soluble, unless very hot water is used in leeching the bark; but in all barks there is, besides extractive or coloring matter, a large amount of acetite of potash, which is nearly as soluble as tannin itself, and which is always leeched out of the bark and forms a part of the tan liquor or ooze in which the tanner steeps his hides. That the potash, which abounds in all barks, is leeched out, is evident from the fact, that ashes, obtained from burning the leeched bark of tan yards, will not afford a ley sufficiently strong to make soap. The same thing is true of wood that has been long soaked in water. The black oak or Quercitron—the Quercus Tinetosia which is so valuable for its coloring properties, is among the richest of barks in tannin, and makes the best quality of leather, but it is generally abhorred by tanners, and avoided in the first stages of tanning. It abounds in a rich, deep yellow precipitate, which attaches itself, like paint, so tenaciously to the surface of the hides, that the tannin penetrates very slowly. But by the Hibbard process of tanning, the hydro-chloric acid used decomposes and neutralizes both the potash and coloring matters leeched out of the bark, in a great degree, so that the process of tanning is more rapid, and the color of the leather much fairer and more beautiful, besides it, the leather, being tougher and more pliable.

Here then, in the analysis of our indigenous barks, is a field large enough to give useful and honorable employment to all the first chemists of the country. Not possessing, myself, either the time, skill, or requisite means to pursue this subject, but believing that you possessed them all, in addition to a taste and zeal for such pursuits, I have taken the liberty to present these views and suggestions for your consideration.

There are other matters connected with this subject which belong rather to the commercial and agricultural business of the country, but are not wholly devoid of interest to the naturalist and chemist. I allude to the quality and quantity of tanning materials as produced and influenced by latitude, locality, and climate. In the Eastern, Northern, and Western States the quality and quantity of tan barks are far inferior to those of the Middle, Southern and South-western. The facilities and natural resources of the South for manufacturing leather, over those of the North, as far exceeds those of the latter, as the actual amount of leather and shoes manufactured by the North exceeds those manufactured by the South. The South, in fact, ought to furnish the North with leather; and should, moreover, produce all the sumac needed for home consumption, both for dyeing and tanning, of which we now import large quantities. By procuring from the coast of the Mediterranean the best varieties of sumac, viz., the Rhus Coriana and the Rhus Cotinus—the former used chiefly in tanning, and the latter in dyeing, the South might grow enough in a few years for export, and find it a profitable branch of industry.

But having extended this communication much beyond the limits first designed, I close by expressing the hope that you will find it of sufficient interest to secure your good wishes and efforts to aid in the developement of the great unexplored resources of our country.

With much esteem I am, respectfully yours,

W. W. REID.

Tanning Buckskins.

We present the following simple process for preparing buckskins, as a useful accompanyment to the foregoing interesting letter. During the war of 1836-7, in Florida, the officers and soldiers while encamped on the Withlacoochee river, were frequently not in the best of circumstances respecting good coverings for their understandings. The Indians have long been distinguished for making an exceedingly good and durable buckskin, and it so happened that a number of them, with their squaws, were kept kind of prisoners at the camp of our army. One day a friend of ours in the army, (one of the best practical tanners and leather dressers in the United States) watched with great earnestness, the mode by which the squaws dressed their deer skins. He observed that they used the brains of the deer mixed along with lye made of wood ashes forming a kind of soap. This solution was rubbed on the skins, allowing them to dry at each operation—two or three times, until the skins were completely saturated with the solution. After this, the skins were smoked, the same as hams, in a pit dug in the ground, After the Indians had left the camp, the officers could not even get moccasins. The idea suggested itself to our friend, that there was no use of wanting shoes when there were plenty of deer killed; but from a distance in the woods they could not, and were not accustomed to bring the brains of the animal; but a remedy was at hand; he knew that soap was the same composition, as that used by the Indian in tanning, and he had plenty of that. The blacksmith made him an old shaving knife, and he got his post up between two trees, while he kept an anxious eye to his skins soaking in the river, for the aligators were not very respectful of the right of property. After the skins were properly prepared, a strong solution of warm yellow soap was made up, in which they were handled until cold; they were then dried and went through the same process until the practical tradesman saw that they were made into leather; when they were afterwards smoked in the manner of the Indians. From these operations an excellent buckskin was made, which through the drenching of rains and the frequent immersions in the swamps and everglades, retained its pristine softness and qualities. Thus, in the wilds of Florida, a scientific tradesman applied his knowledge and art, in a manner for which many a gallant soldier had reason to be thankful. In such situations the mechanic rises far above the philosopher.

On the Preservation and Incombustibility of Wood.

There is nothing so amusing as to read in some periodicals, a receipt for making this, and that wonderful composition. On preventing wood from being burned, for instance, one will recommend a paste made up of potash and flour mixed well together and stirred, we suppose with a glass rod or some other anti-corrosive substance. Well another will recommend a mixture of beef gall and sulphate of copper. In fact, there is no end to the quantity of receipts on this subject. But those who are acquainted with the effects of potash know that it destroys wood in a very short time. The ash vats of the soap maker soon become as soft and spongy as mucilage; the sulphate of copper and beef gall is a good mixture. Corrosive sublimate, or chloride of mercury, is the best preservative of wood that is known, but it is too expensive for general use. The next best preservative and incombustible substance is alum. Immerse dry timber in a strong solution of alum, and dry it in a kiln, the warmer the better, and we will warrant it to be the best and cheapest substance for preserving wood from decay and burning. To those who are acquainted with the nature and effects of alum, they know what a great heat alumina can stand, and alum when deprived of its water by strong heat, does not easily combine with it again, by any common means. Therefore, the reasonableness of the forgoing statements.

By washing wood with strong soap suds, allowing it to dry, and then washing it with a strong solution of alum, a most excellent water-proof coating is the result.

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New Inventions.

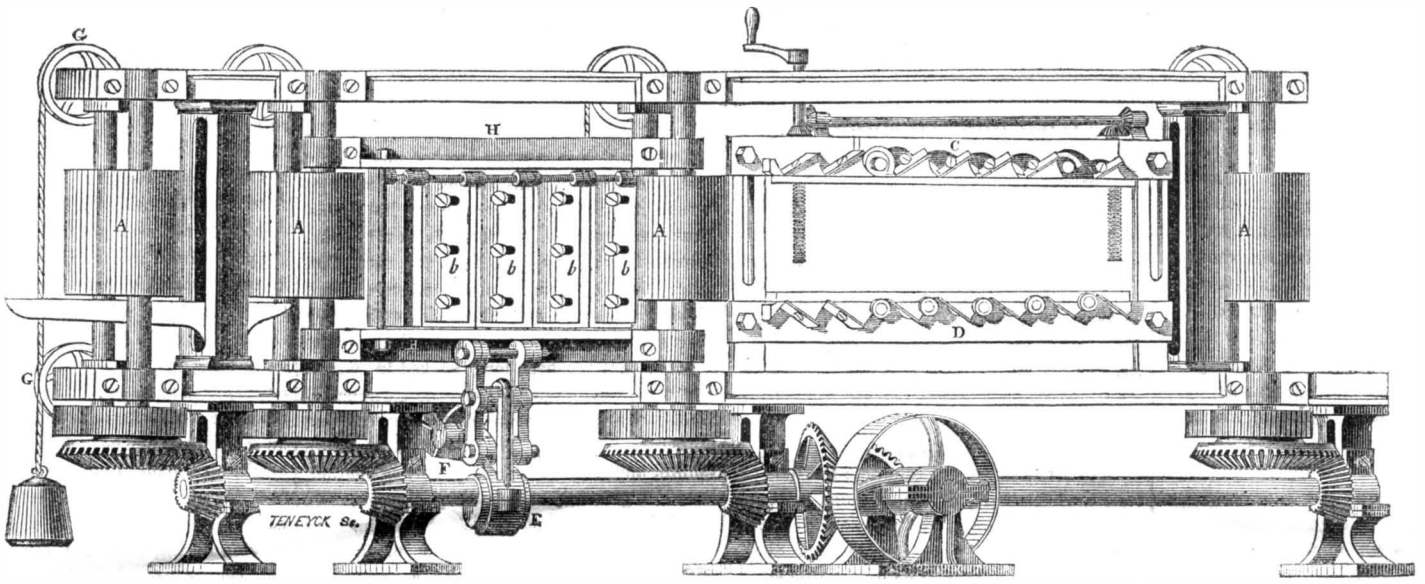
Improvement in Apparatus for Drying Bogasse.

Mr. Sylvanus Richardson, of Jerhico, Chittenden county, Vermont, has taken measures to secure a patent for improved apparatus and processs for drying bogasse, (expressed sugar cane) and other materials requiring the same kind of treatment. He employs an oven heated by a blast of hot air admitted through its floor, and having a horizontal flue proceeding from its upper part, through which the heated air escapes, and through this current, the bogasse or material to be dried is carried by a broad endless chain web. The floor of the oven is made of two parts, consisting of one or more metal plates set at an inclination, like a slightly peaked roof; above this peaked floor of the oven, there is a rack hung on an axis, which can be tilted by a handle on the outside. The bogasse, &c., is discharged from its carrying web on this rack, until it is loaded, when it is tilted from the outside by the handle spoken of, and the bogasse, &c., is thrown upon one of the inclined floors of the oven. At the foot of the inclined floor is a metal door, and while the rack is filling with another load of bogasse &c., the other load is lying and drying on the floor, but whenever a load is laid on the rack, and is tilted on the opposite inclined metal floor of the oven, the metal door of the other side is suddenly thrown open and the dried bogasse slides down into a vehicle standing to receive it, when the door is as suddenly shut. The loading and discharging of the two inclined oven floors alternately is continually carried on, and constitutes the process of the invention. The endless chain web can receive a fast or slow motion as may be required for giving some materials a greater or lesser exposure to the heat of the oven. The whole apparatus is exceedingly simple and the process anything but complex. All the parts can be built strong, and consequently there will be but little repairing required.

Improvement in Burning Candles.

We learn by our worthy cotemporaries, the "London Mechanics' Magazine," and the "Patent Journal," that Mr. W. H. Jones, of Queen's College, Oxford, has taken out a patent for a cap with a hole in it to be placed over a candle while it is burning. It passes about one inch down the sides of the candle, a little distance from it, with its edge resting on the candle to prevent the guttering of the same. This cap descends by its own weight as the candle is consumed. This cap, no doubt, requires the candles to be of a uniform thickness, and is designed especially for the mould and not the dipped kind; it is best adapted for wax or spermaceti.

BARLOW'S PATENT PLANING MACHINE.



The accompanying engraving is a longitudinal elevation of the Wood Planing Machine of Mr. Nelson Barlow, formerly of St. Louis, but now of this city. It was patented on the 7th of May, 1851, and has been for some time in successful operation.

Description.—A A are driving rollers for propelling the plank; G G are pulleys banded together by a chain and connected to elastic pressure screws, which are acted upon by the weight; *b b b b* are the planing knives, which are attached to the frame, H, and they together have a reciprocating movement by means of the eccentric, E, and its connections; these knives are each regulated to cut a definite shaving, and to surface the one side of a plank. Immediately in the rear of the frame, H, is another frame, with its knives of similar form, for removing the surplus and reducing the plank to an uniform thickness; the knife stocks in this rear frame are elastic, and act upon the plank with some degree of force, to hold it in contact with the series of knives, H, in the front frame; they yield to the inequalities of the plank, and divide the surplus to be removed among the second series, and at the same time planks that may be too thin are, by this means, surfaced upon one side when desired. The beam, F, communicates motion to the rear knives. The effect of this arrangement is to protect the knives from the gritty matter of the surface of planks more effectually than by any other method, and by removing from the surface side a sufficiency to give it the proper finish, without having that side subjected to the injurious action of roughing or reducing knives; and, lastly, the transverse movement of the knives enables them to cut with greater ease, to obviate all difficulty from choking, and to plane much smoother than by any other means. C is the tonguing, and D the grooving tools; these are a series of incising steel rollers and stationary cutters arranged in a convenient form, and produce a groove and tongue unsurpassed.

The machine readily planes, tongues, and groeves one hundred and forty feet in length per minute, and Mr. Barlow says it requires but the one-fourth proportionate power of the Woodworth machine.

The claims of this patent will be found on page 302 (No. 38) Scientific American. The planks are fed in edgewise beween the two sets of knives, having a reciprocating motion up and down, traversing with a slanting shaving cut, the plank or board, as it is fed in. The knives, *b b b b*, are fixed in their frame, the back of which is seen, and the frame, or it may be termed a plate, is hinged at one end, and opens or closes like a door. By such a mechanical arrangement, it is very easy to get at the knives for clearing obstructions, or for taking them out to be sharpened. The plank is fed in at the end, where the weight at G is placed, and comes out finished at the other end. This machine is in operation in Cincinnati, and one has been put in operation at the new mill recently built by Messrs. Mercer & Pechin, at the foot of Washington street Philadelphia; another will soon be put up in Pittsburg, and one in this city. The machine requires about six horse-power to keep it in operation at the rate of one hundred and forty feet of flooring boards per minute, turning them out completely planed, tongued, and grooved, the work being fully equal to that of any other machine. Mr. Barlow resides at 246 Bleecker street, this city, to which place all communications, &c., should be addressed, and they will meet with prompt attention.

Improved Shingle Machine.

In addition to the improvements on machinery for making clapboards invented by Mr. E. D, Worcester, of Lockport, N. Y., and noticed by us last week, he has taken measures to secure a patent for a good improvement in the feed motion of the knife cutting shingle machine. No weight nor spring is employed to feed the rough block to the knife, but the block is fed in by rack and pallet actuated by cams which are operated by the knife gate, at every stroke to move the feed frame forward, to the exact point and position for every new cut. The improvement simplifies the feeding motion, and renders it less liable to getting out of order. Every improvement, however small, in machinery which is extensively used, adds greatly to the wealth of our country, and the inventor should receive his due reward.

Saw Filing Machine.

Mr. Thomas M. Chapman, of Old Town, Penobscot Co., Maine, has invented and taken measures to secure a patent for improvements in machinery, for filing saws. The file is attached to a swinging frame, which is secured to a horizontal rod, having a reciprocating motion and so arranged as to turn in the direction of its axis. The swinging frame consequently has an up and down motion, and being connected to the horizontal rod by joints, it also moves backwards and forwards. The file is so arranged as to turn on its axis and is adjusted and kept at any position by the handle. The saw to be filed is placed between clamps and secured by screws, the clamps are moved by means of a rack placed under them in which a pinion works; on the shaft of a pinion is placed a ratchet wheel which is operated by a pawl and lever. The same motion is given to the file by mechanical devices, as is given by hand, and this is allowed to be the best. Quite a number of improvements have recently been made in saw filing machines: no machines of this kind were in existence a few years ago.

Improved Crutches.

Mr. John S. Gallaher, says the Washington Telegraph, who has long been so afflicted as to require crutches, has made a valuable improvement in the same, which we hope will benefit him in every aspect. The crutch is thus described. It is neat, light, and elegant, and at the lower end there is a combination-extension ferule of brass, by means of which the length of the crutch can be extended or contracted at will. The extremity is rounded off with a knob, from which projects a bulb of gum-elastic, or gutta percha, to prevent noise, injury to the floors, and the harsh jars that attend the putting down the crutch upon hard ground.

The upper portion upon which the arm rests, is a steel elliptical spring, which rests upon a strong spiral spring, having its insertion in the firmly bound staff.

The Lowell Bobbin Machine.

The Lowell Courier informs us that Mr. Samuel Garland, formerly of Nashua, N. H., is the true inventor of the bobbin machine, which we spoke about last week, as having been pirated into a patent by Mr. Thomas Coats, the thread manufacturer of Paisley, Scotland. As this machine is exposed in the Worlds Fair, as a British invention, it is no more than justice to our country, but above all, to the real inventor, that the honor of the invention should be given to him to whom it is due.

"Some thirty years ago," the Courier says, "Mr. Garland, then residing in Nashua, and engaged in carpentry or wood-work, not being satisfied with the old-fashioned slow operation of making bobbins, put his wits to work and invented the machine now in use. For several years he used a wooden machine. While he was thus employed in the production of bobbins, the late Kirk Boott, induced him to come to Lowell, and establish himself. He did so, and took the shop known as Douglass's Bobbin Factory, between the carpet and machine shop. The first bobbin-machine, ever seen in Lowell, was made at that time by Mr. Garland, by him used, and by no other, during the period of three or four years that he continued in the shop. Mr. Douglass was at this time making shuttles in a portion of the same shop. In time Mr. Garland sold out to Mr. Howard, in his employ, who in turn gave way for Mr. Douglass. These facts will be substantiated by a number of citizens, and among others by Geo. Brownell, Esq., then at the machine shop. Indeed Mr. Brownell made the very machine which Mr. Coats took to Scotland, and from a wooden model by Garland.

Mr. Garland it seems, never took out a patent, and the Courier wisely observes that "fortunes have been made out of it, and had it but occurred to its inventor at the time, to obtain a patent for his invention, he might have reaped a million of dollars from it. It did not occur to him, however, then, and almost in the infancy of our manufactures, that his simple machine would in time come into universal use. Thus he neglected the matter, and the first patent or exclusive right of using it, that we hear of, is that obtained in Scotland by Mr. Coats! Mr. Garland is a shrewd, as he is known to be a most ingenious Yankee, but he was wonderfully at fault for once in his life, when, one may almost say, he gave so valuable an invention away."

Here is a warning to our inventors, we hope they will profit by it. We believe that more correct notions about such things are abroad since the Scientific American came into existence. What signifies the price of the patent, to the risk of losing all and every advantage by law, tending to secure the profits—the just profits of a good invention.

Where is Mr. Paine and his water gas?

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English Statesmen and Patent Laws.

Two weeks ago our London Correspondent, "Excelsior," informed us that Lord Granville had introduced a Bill into Parliament for reforming the British Patent Laws. It was spoken of favorably, as it was a decided improvement on the old system. Lord Granville was highly complimented by Lord Harry Brougham, who has always been friendly to inventors; and the inventive community generally thought and said that Granville had done very well, although they consider the reform to be what we Americans would call "*small potatoes.*" Since that time, however, it seems that my Lord Granville has come out against his own Bill. He has made the discovery, by the examination of few interested big dunderheads, that "the patent laws are wrong in principle and unnecessary." Blow high, blow low, my Lord Granville, it appears that your vocabulary of statesmanship may be easily condensed into "from Windsor Park to Parliament—from Parliament to Windsor Park." It is a great pity that this aristocratic statesman had not informed himself particularly on this subject before he introduced his reformatory Bill; but this very circumstance is an evidence of a want of cautiousness and a sound discrimination on his part, and shows that but little confidence can be placed in his judgment. That the English Patent Laws, as they exist, are unjust in one principle, no one can doubt, but they are not unjust in every principle. The principle in which they are unjust, is the complicated expensive process of procuring a patent; the just principle is the protection of the inventor in the exclusive use of his improvement. The round-about process of procuring an English patent; the huge wax seal attached to the document, and which has to be carefully protected in a box—a load of care in itself—is a system unworthy of an enlightened country, and a disgrace to all our ideas of statesmanship. The English nobility are so accustomed to such a multiplicity of forms, that they cannot see how any system can be carried out without as many palavers and ceremonies as would give an American, of the true stamp, the intermittent fever; many suggestions made to Lord Granville about the abolition of the English Patent Office process has, no doubt, so confused his mind that he can see no remedy but the abrogation of the whole system. He could not advocate that without a good and just reason, and this he gives by asserting "the Patent Laws to be wrong in principle." Very well, my Lord Granville, allow them to be so, and you cannot stop here, you must go on in your work of the repeal of such laws for whatever purpose; if you do so you will find it proves too much for your own sake. First of all, then, commence with declaring the patent titles of nobility wrong in principle, and bring in a bill to abolish them; next bring in a bill against the unjust monopoly of your inherited estates, and after having swept away all such truly unjust monopolies—after reforming such households as your own—then you may, with some plausibility, bring in a bill for the repeal of other monopolies. The first we would suggest to be abolished is the law of copyright, for assuredly no man has a better right to literary than to inventive property. We advise this measure as a preliminary one to the abrogation of the Patent Laws, that the press may soon settle the matter with the British House of Lords.

If the British statesmen would adopt a code of Patent Laws nearly the same as those of our Republic, they would exhibit some judgment indeed, but this would touch their pride, —they would not like to have it said, "they were indebted to America for their wisdom."

Atmospheric Light.

We have seen quite a number of notices, lately, about what are termed "atmospheric lights." The principle by which these lights are produced, is very well understood. It is the law of gaseous absorption. For example, when atmospheric air is passed through a volatile hydro-carbon, such as naptha, it absorbs the fluid, and when the combined gases (for gases they are) are ignited, a bright light is produced. It is not very safe to employ any hydro-carbon gas mixed with the atmosphere, for it is a very explosive mixture. The explosion of camphene lamps is caused by the ignition of such a compound gas. There is no profit either in erecting an apparatus for the purpose, as the argand burner accomplishes the same object by a sure, simple, and safe process.

Hot-Air Drying Process.

It may be recollected by many of our constant readers, that we described, on page 109, Vol. 5, Sci. Am., a new patent method of purifying old casks and feathers, which had been introduced with great success in London. We learn by Chambers Edinburg Journal, this system of purification and drying is now widely extended and applied to a great number of purposes, in both England and Scotland. The main feature of the system is simply to produce a current of pure heated air through a chamber in which articles required to be dried are exposed. "The temperature of air can be raised or lowered so as to suit the requirements of a very great variety of substances. It is now extensively employed in large wash-houses, connected with hospitals and public establishments. The process of drying clothes by hot air, thoroughly frees them from any bad smell, and completely purifies them from contagious evils. In hospitals, the clothes are dried at a temperature of about 250° Fah., and this heat does not in the slightest degree hurt the cloth. It is the grandest system ever discovered for the purifying of feathers, and we hope that this hint will not be lost on our people, for verily there can be no greater nuisance than badly cured feathers.

This system is now extensively applied to the drying of wood for cabinet work, such as pianos, and if all the timber employed in house and ship-building was dessicated by this process, it would be well for the owners of both houses and ships. Trees which stood a few weeks before in the forest are rendered dry and fit for ship-building in a few hours.

It has been proven that timber thus dessicated is much stronger than that seasoned in the usual way. This patented dessicating process is now employed by Messrs. Chambers, of Edinburg, for drying their printed sheets. Some of our large publishing houses, such as the Messrs. Harpers, might profitably adopt this plan.

A short time ago we had a communication from a gentleman in Nova Scotia, respecting the drying of fish by artificial means. We recommended the old stove room system, such as is employed in calico printworks, and for his purpose, we still think it the most suitable; but to change it into this dessicating process all that is required is simply to produce a current of hot air, and for a full description of this new process, to which we sincerely call the attention of our people, we refer them to the page in our last volume spoken of above.

Short Conversations on Mechanics---No. 1.

Q. "What does the science of mechanics relate to."

A. Mechanics is that branch of practical science which considers the laws of equilibrium and the motion of bodies, the forces by which bodies may be made to act upon one another, and the means by which these forces may be increased, so as to overcome others. The term mechanics is now made to embrace a knowledge of pressure and tension of cords, iron rods, wooden frames, fluids and gases, in fact, it takes cognizane of the construction of every tool, house, bridge, machine, and of every instrument whatever. It is is, however, divided into two distinct divisions, both of which are rooted and grounded on certain fixed principles, without the knowledge of which no man can move but at random, in the construction of machines, &c.

Q. "What are those two divisions of mechanics?"

A. They are termed statics and dynamics The former may be said to relate principally to the stability of structures, such as dams, sea walls, bridges, buildings, &c., and the pressures on the same. The architect, carpenter, mason, and civil engineer, should be well versed in this branch. The other branch, "dynamics," (a term derived from Greek, and means *force* or *power*) relates to the motion of bodies and is a complex science, one with which very few are intimately acquainted. In "statics" pressure and direction are the leading truths, in "dynamics," *pressure, time, direction*, and *motion* are the leading truths.

Q. "I wish more particularly to be informed about the laws relating to bodies in motion, such as machines, but if "statics" relates to pressure, is there not force in statical pressure to move bodies?"

A. You mistake terms for principles, statics relates to the laws of equilibrium, and whenever any pressure moves a body, the laws relating to the same, come under the consideration of dynamics.

"Q. A statical pressure then cannot move a body?"

A. You should rather have said, "a statical pressure means that we should view bodies entirely apart from motion, and having no motion themselves, they cannot surely impart motion to others." You must never confound *a pressure* with a *statical pressure*, the one is as distinct from the other as to say *a horse* and *a strong horse*. It is positively necessary that these particular definitions should be clearly understood to a right understanding of the subject.

Q. "I now clearly comprehend the difference, and wish to know what are the fundamental doctrines of dynamics—or those laws which treat of bodies in motion. The reason why I wish to know particularly about such laws is, that I have come to the conclusion, after many trials, that there is a great deal of ignorance respecting the government of machines, such as the forces which move them; this accounts for all the failures of what are called "perpetual motions;" it has been so, I believe in my case?"

A. It is precisely so. No man thoroughly acquinted with the fundamental principles of mechanics would expend time or money in constructing a machine called a "perpetual motion," he would as soon attempt to fly to the sun. He knows from his knowledge of the fixed laws of the universe—those laws given by an eternal creator and law giver, that no machine can give out more power than that which is impressed upon it to move it, but rather less, as there is some loss by friction. Leaving resistance out of the question, a machine set in motion would move on forever, but as there is friction and resistance to all machines, the force first impressed upon them to set them in motion is at length absorbed, rather destroyed, by the resisting force, and the machine stops.

Q. "Do I understand you, then, to say that no machine has power within itself to put and keep it in motion, and that it never gives out quite the power as that which was impresed upon it to set it in motion?"

A. Exactly so. Some machines, such as clocks, have been very skillfully made, so as to produce little friction, and to avoid much resistance; they have kept in motion a long time, but at last they have stopped; at no time, however, did one of them give out or had more power when moving, than that which was first impressed upon it.

Q "You have just said that no machine has a power within itself to set or keep it in motion, what do you mean by *a power*, is it not *a force*, and is there not such *a force* in the weight or spring of a clock to set and keep it in motion?"

A. I will answer this question by asking another. After the weight or spring has *run down*, how long will the clock keep in motion? "It will stop." There, you have answered aright. How can it be set in motion again?" By winding up the cord and weight or the coiled spring. "And who does this, the clock itself?" No. "Now I see it. The clock will keep in motion just until the force which wound up the weight or spring is expended." That is it exactly.

Q. "I am much interested with this conversation, because it leads me to see things in a different light from that in which I viewed them before."

A. You mean to say that you have been looking to secondary instead of first causes.

Q. "I suppose that is it."

A. There are too many in the world who do the very same, they never look beyond the weight of the clock, and think the moving power is in the weight. You now see that the weight cannot lift itself, therefore its power is derived from another source; it is not innate.

Q. "I should like to ask you a few more questions upon the same subject, as there are some other things relating to the motions of bodies and machines, which I do not yet fully understand."

A. I shall be happy to answer you again some time next week.

[We intend to present three or four such articles, in order to lead our young mechanics to reason and reflect on such subjects. It has been and is our object to inculcate sound and correct views upon mechanical principles. The mechanics who read the Scientific American will not be deceived by machines got up for the purpose of imposing on the public.

Remedy for Stains, &c.

If cotton or linen goods, as linen towels, &c., become stained from fruits, tarts, jellies or jams, apply *immediately* common table salt. This if well rubbed on before the stain becomes dry, will generally remove it, or will keep the article damp until by the usual process of washing it will disappear Pure cider vinegar if immediately applied is very useful in removing stains from either cotton, linen or woolen goods. This should be afterwards rinsed out with soft water. For mildewed linen, salt and sour buttermilk rubbed over the stains and exposing the goods to the sun, a few times repeated, is an effectual remedy. Spots from rust are generally removed by applying the juice of a lemon. For the removal of ink spots, milk thoroughly rubbed on and rinsed out with pure cold water is a pretty certain remedy.—[New York Tribune.

[We will give a much better receipt than the above. Take 1 lb. of chloride of lime (bleaching powder) and put it into a gallon of cold water, stir it well for a few minutes, and allow it to settle. Pour off the clear liquor, and keep it in tightly corked bottles. Stained clothes—linen or cotton—after being washed to free them from grease, by dipping the stained parts in this chlorine fluid, will cause the stains to be removed quicker, safer, and with far less trouble than by any other known means. In the laundry, this fluid should be kept in a large stoneware or glass vessel. It should be large enough to dip in the articles so as to cover them entirely in the liquor, when no harm will result if they lie for some hours. A careful laundress should also have a vessel of very diluted sulphuric acid, to dip the articles of clothing in, after they are taken out of the chlorine and washed. The clothes should be well rinsed, using three waters afterwards. This is a bleaching process, nearly the same as that practised in bleachworks.

A little of the salts of oxalic acid put on an iron stain, and a little hot water poured on it to dissolve it, will remove the stain very quickly without injury to the cloth.

Our readers may place the utmost reliance in what we have said, we are acquainted chemically with the whole process: oxalic acid is a poison and should be kept out of the reach of children.

It is very difficult to remove stains from woolen goods. If the woolen cloth is white, some sulphuric acid in very hot water may remove it, if it is an iron stain. It may also remove it without injury from a cochineal red shawl, but such jobs should be left to the dyer. We only recommend the above process of ours for white linens. By our advice, a number of friends employ it in their families and are delighted with it.

It would certainly tend much to domestic comfort if modern chemistry, as applied to the arts, was taught our young ladies, instead of that superficial kind found in old receipt books.

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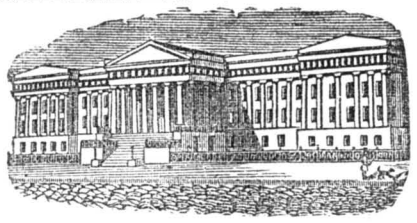

☞Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS
Issued from the United States Patent Office.
FOR THE WEEK ENDING JULY 29, 1851.

To Job Cutter, of Birmingham, England, for improved method of liberating Metal Tubes from the Forming Mandrel. Patented in England Feb. 28, 1849.

I do not claim the exclusive use of the rolls for cross rolling, as described, except when the same are employed in the manufacture of pipes or tubes of copper, brass, or other alloys of metal, as described, to be used as the flues of steam boilers. But I claim, in the manufacture of pipes or tubes of brass, copper, and alloys of metal, for use as the flues of steam boilers, by rolling hot on a mandrel, whether parallel or taper, the enlarging of them by means of cross rolling, as above described, for the purpose of extracting the mandrel.

To Aaron Richardson, of Bellows Falls, Vt., for improvement in Oil Cups for Journal Boxes.

I claim the employment within the mouth of an oil cup of a valve, operated upon by a spring or its equivalent, in the manner and for the purpose substantially as described.

To Harvey Shaw, of Lowell, Mass., and L. T. Smart, of Campton, N. H., for improvement in Fly-Traps.

We claim a tube in combination with a glass, and the bottom and rod, for the purpose described, meaning to vary the construction while keeping the fixture substantially the same.

We also claim the ring which is to close the apparatus in the bottom, for the purpose to which it is applied, or any thing similar in its application.

To Geo. H. Corliss, of Providence, R. I., for improved Cut-off Gear.

In combination with the reciprocating motions communicated to the lifting rods by the eccentric gear, I claim imparting a lateral movement to the free extremities of said lifting rods to disconnect them from the valves and permit the latter to close to cut off the steam, or other expansive fluid, by which the engine may be driven, whereby these rods are made to perform their usual duty of opening the valves and in addition, that of catches or latches in alternately connecting the valves with and disconnecting them from the mechanism by which they are opened, thus greatly simplifying the construction of the valve gear, rendering the same more durable and less liable to get out of order.

To M. P. Coons, of Lansingburgh, N. Y., for improvement in Flexible Fences.

I do not claim any particular form or construction of a part, in connection herewith, the same not being essential, nor whether the same be of wood or any other substance (I having heretofore invented a metal post, being a convenient device to use in connection herewith). But I do claim the form and construction of the two concave plates, with pins near their open ends, forming one coupling cap or clasp, for the purpose of uniting together the upper bars of a fence or railing whether the same be of wood or metal; and also of securing the same by the use of a pin with a screw thereon, or other device on the top of a post, in the manner and for the purpose herein described.

And in connection therewith I claim perforating the bars or rails with conical or tapering holes, mortices, or orifices, for the insertion of pickets or bannisters, in the manner and all for the purpose substantially as set forth and described.

To T. J. Eddy, of Waterford, N. Y., for improvement in Cast-iron Car Wheels.

I claim, first, a cast-iron car wheel made with a hollow chilled rim and hollow spokes, in the manner and form set forth.

Second, the method of forming wheels for railroad cars, by casting the rim and spokes upon a grooved hub, which has been formed separately, as described.

To James McCarty, of Reading, Pa., for Spring Expanding Swage for Boiler Tubes, &c.

I claim an expanding swage constructed as set forth, and consisting essentially of radiating sections, which are connected with each other and to a common centre by spring shanks, as described.

To Wm. Hall, of Boston, Mass., for improved Powder-proof Bank Lock.

I claim moving the key bit to the tumblers by means of a follower sliding between walls, as herein described, which follower acts in such a manner as to close the space into which powder might be introduced, when this is combined with a key hole cover sliding as described, by which combination I make a powder-proof lock with tumblers, which cannot be reached by a pick, and whose slide cannot be blown off so as to secure access to the tumblers. I also claim the combination with the plate, N, of the transverse sliding vertical slotted plate, which jointly cut off all communication with the tumblers, in every position of the bolt.

To Sewall Short, of New London, Conn., for improvement in Window Sashes.

I claim fastening the bars of two parts, as described, by binding them together by a screw at the junction of their ends, their opposite ends being hooked into the frame of the sash, substantially in the manner and for the purpose set forth; and in combination with this device I claim the elastic bed for the glass to rest against, as specified.

To J. C. Fonda, of Albany, N. Y., for improvement in machine for Grinding Flock, &c.

I claim a cylinder or drum with knives or beaters attached, extending its length, said knives being set at an oblique angle, both with the radial lines and the axis of the drum, in combination with an outer cylinder, within which the drum revolves; the outer cylinder also revolving in an opposite direction, and having on its inner surface, at intervals, knives extending its length, the said knives being parallel with its axis but oblique to its radius, said outer cylinder also having, in the intervals between its knives, panels containing projecting ribs, oblique to its axis, and so arranged that the action of the revolving knives upon any material lying between the ribs, shall gradually carry it from the inner to the outer end of said cylinder; thus subjecting the material to repeated cuttings between the revolving knives, substantially as set forth.

I claim the method of constructing the outer cylinder, of alternate panels, the one set being permanent, and having on its inner surface oblique ribs, the other set being movable and adjustable (these panels are called cross-bars in the above description), by screws and springs, and having on its inner surface oblique knives; the fixed panels being connected with an outer and concentric ring of metal by chambers or passages, the same being in combination with another cylinder or ring of metal, within which it fits and revolves, which last ring has a hopper upon it, to receive the material to be operated on, opening into the said chambers or passages, and by them into the cylinder containing the knives, substantially as set forth.

I claim the combination of the outer and inner rings, with the inner and outer revolving cylinders, and their knives and ribs, making a machine for grinding flock or any other material, substantially as set forth and described.

To J. H. Barsantee, of Portsmouth, N. H., for improvements in Knitting Machines.

I claim, first, the sliding independent yarn carriers, each governing an independent thread for each needle, substantially in the manner and for the purpose as described.

Second, I claim operating the yarn carriers simultaneously, by means of the conical ring working in the inclined slit in the carriers, substantially as set forth.

To G. H. Thatcher, of Albany, N. Y., for improvement in Stoves and Portable Ovens.

In combination with a portable oven, I claim the permanent damper plate or shut-off, which forces the heat and smoke, after striking against the bottom of the oven, to pass up the front flue and over the oven, and then down the back, passing down behind the permanent damper plate or shut-off, and out through the ordinary draught or top flue of the stove; being so simple in its construction that it may be made by any ordinary tinman to suit any ordinary stove, as described.

To David Horner, of Knox Co, Ohio, for improvement in Seeding Apparatus of a Seed Planter.

I claim the combination of the measuring seed roller with the distributing seed roller, the two being arranged and operated in the manner and for the purposes described.

To Henry Moore, of Seneca Co., Ohio, for improvement in machines for preparing Hubs for the reception of Boxes.

I claim the sliding shaft with the slot passing longitudinally into the mandrel together with the screw-thread cut upon the mandrel, to feed the knives, and the knives which are so adjusted as to act at both ends at the same time; and also cross stays, which may be formed of wood, which are intended for the purpose of fastening and turning the hub, all of which will appear by the above description except the cross stays, for the purpose of securing and turning the hub during the process of boring.

To Wm. H. Bryan, of Georgetown, D. C., for improved Fittings for Bolts, to facilitate the discharge of cargoes, etc.

I claim the cargo deck formed of loose narrow sections, so that it may be removed to adapt the vessel to carrying cargo in packages; or may be put in place to facilitate the unlading of cargo in bulk, in combination with the railway on the floor for transporting the lading to the point whence it is removed from the hold.

RE-ISSUES.

To Paul G. Stillman, of New York, N. Y., for improvement in Steam and Vacuum Gauges. Originally patented May 9, 1848.

I claim, first, the combining with the reservoir of mercury, at the lower end of the tube, an elevated chamber, forming part of the reservoir, substantially as described, so that the zero point may be high enough to be visible above the reservoir, as herein described, and also that the air contained in the tube being condensed by the pressure of the mercury in the elevated chamber, may furnish more desirable divisions on the scale when very high pressures are to be indicated.

Second, the producing a partial vacuum in the tube of the steam gauge at the time of filling it with mercury, for the purpose of bringing the zero point high enough to be visible above the reservoir, and also in order to prevent any partial vacuum produced in the boiler from drawing all the mercury out of the tube.

Third, surrounding the lower end of the glass tube with a metallic cylinder provided with a cap or plug at the lower end, for protecting the glass tube and allowing the mercury only to pass slowly either through a very small hole or between the threads of the screw and the establishing a connection between the reservoir and the boiler, substantially in the manner and for the purpose specified.

Fourth, the method of preventing the air or moisture from passing between the mercury and the cylinder into the tube, either turning the cylinder or washing it with mercury, or by plunging it deeply into the mercury, as above described.

Fifth, preventing the inside of the tube from being soiled with oxidised mercury, by either placing on the surface of the mercury in the tube some fluid (such as naptha) which does not act perceptibly upon mercury, or by filling the tube with gas, as made known.

DESIGNS.

To R. J. Blanchard, of Albany, N. Y., (assignor to B. P. Seamed & Geo. H. Thatcher), for Designs for Stoves—three patents.

To N. S. Vedder, of Troy, N. Y., (assignor to A. T. Dunham & Co.), for design for Stoves.

A Man's Life Saved by his own invention.

As Dr. Allen, the New Haven Register says, (the inventor of the patent carriage top spring,) was crossing the railroad track, in the southern part of the city, on Monday, a train of freight cars was unexpectedly backed up against his carriage, when it was too late to avoid them—but the doctor happily retained his presence of mind, and touching the patent spring which lets back the top of his carriage, he cleared the wreck at a bound! The horse also escaped with trifling injury. This was putting the improvement to a test little anticipated by its inventor.

White's Patent Hydro-Carbon and Coal Gas.

We have more than once spoken of this gas, which is the subject of an Amererican Patent, and was exhibited in our city two years ago. The patent is not for the gas which is made from decomposed water and resin gas, but is for the use of chains or minute pieces of iron with which the oxygen of the water combines, while the hydrogen escapes and mingles with resin or carbonic gas for burning. It is well known that Prof. Fyfe made a tremendous onslaught on this gas, but it seems that in this case Doctors differ, for Prof. Dr. Frankland, of Manchester, has been examining the subject, and has reported favorably. The following is the substance of the report, but in reading it, we must take into consideration that the patentee and professor belong to the same city.

The experiments, spread over a period of six days, are given with great minuteness of detail. The quantity of gas made at each time, varying from 3,340 to 4,157 cubic feet—obtained solely from resin and water—no coal being used except for fuel. This gas possessed an illuminating power of 12½ per cent. superior to that of the Manchester cannel gas, while it was found to be free from all the impurities so deleterious in coal gas. The specific gravity of the purified hydro carbon gas is .59133; that of the Manchester coal gas, .52364. The professor states that the same burner which suits cannel gas is equally adapted for the hydro-carbon gas. "The above facts," he says, "prove that 1,000 cubic feet of hydro-carbon gas before purification are equal to 1,042 cubic feet of the Manchester coal gas; and that 1,000 cubic feet of hydro-carbon gas after purification are equivalent to 1,125 cubic feet of Manchester gas, and further, that at the present market price of the articles consumed and produced, 1,000 cubic feet of average hydro-carbon gas before purification can be produced exclusive of rent, taxes, wages, wear and tear, at the cost of 9¼d to 1s 1½d according to the mode of working, whilst 1,000 cubic feet of the same gas purified will cost from 10¼d to 1s 2¼d. A distinction must be made between unpurified coal gas and unpurified hydro-carbon gas; the former contains many deleterious ingredients, which entirely prevent its use; the latter does not contain any noxious principle, but simply has its illuminating power diminished by the presence of carbonic acid." "In conclusion, its purity of composition and freedom from all substances which can, during combustion, produce compounds injurious to furniture, drapery, goods, &c., gives the hydro-carbon gas great advantages over coal gas, which always contains more or less bisulphuret of carbon—a volatile substance that has hitherto defied all attempts to remove it, or diminish its quantity by any process of purification, and which during combustion, generates sulphurous acid—the compound to which all the mischief produced by coal is probably owing. The odour of the hydro-carbon gas, while it is sufficiently strong to give warning of any escape, is far less nauseous than that of the coal gas, and might even by some persons be deemed pleasant, whilst the process of manufacture is so simple that any person of moderate intellect can at once conduct it."

The Saratoga Springs.

The discovery of the Saratoga Springs was made only fifty-nine years since, though it is probable that the Indians knew of their virtues. John Taylor Gilmore, some time Governor of New Hampshire, but then a member of Congress, while shooting in the neighborhood, in in the summer of 1792, found the effervescent water gushing from the cliff of a rock, and the spring almost immediately afterwards became famous.

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TO CORRESPONDENTS.

G. M., of Ill.—Owing to the great number of mills in our country, and other countries, it is very difficult to give precise information about such and such a thing being in use before, although we have great facilities for acquiring information on all subjects. We have never heard of such a ventilator as yours, nor do we believe there is such a one in use anywhere. We believe it to be a real, good, and patentable improvement.

J. G. E , of N. C.—Your favor of the 25th July came safe, with enclosure of $4. We are much obliged for the interest you manifest in the Scientific American. In regard to the Hotchkiss wheel, we would state that he has obtained only two patents for water wheels—one dated Nov. 6, 1832, the other Jan. 9, 1837: they have both expired and have not been extended, and cannot now be without an especial act of Congress. Rose's patent will not expire until Oct. 18th, 1853. You can use Hotchkiss's wheel without liability to him or his agents. Giving the water a whirling motion in the direction of the wheel's motion, was claimed by Parker in 1827. We have positive proof of this. O. H. P. Parker resides in Philadelphia. The MS. you refer to has not been published. We have not yet determined to publish the articles upon Hydraulics in pamphlet form.

H. M., of Vt.—We have not intentionally withheld the numbers you missed: it is a trick we hope never to be guilty of; if they fail by accident we regret it. We had intended to publish the plane, and should before this had we not been so pressed with other matters.

O. C , of Ohio.—We do not think there are in common use any means of adjusting the dies of screw machines while in motion, and we presume a contrivance of this kind could be patented. We could decide your case after examining it.

A. L. S., of Ohio.—We wrote you in regard to the car wheel. The addition to which you call our attention appears not to possess the requisites of a patentable subject. We advise you not to apply.

L. C. K., of Wis.—We do not know the price of Wilson's Theodolite and Circumferentor. The best work on Surveying is that of Prof. Davies: price $1,50.

C. M., of Pa.—We answered your inquiries about the press by letter several days since, our opinion was favorable.

T. A. H., of N. J.—You had better submit your invention to Prof. Page, if you can construct magnets that will act with equal force 6 feet as 2 inches. Your invention would admit of lengthening the stroke to such a degree that possibly an Electric Locomotive might be rendered practicable.

G. W. C., of Me.—Your papers have been forwarded to the Patent Office, hence we cannot get up engravings for you until the patent issues. The expense would have been about $10.

G. P., of Md.—It might be well to advertise for a set of patterns. We do not know of any for sale.

J. H. B., of Ala.—The sketches you furnish of an apparatus for throwing water over dams are so vague that we cannot get a clear idea of the principle involved in it. We advise that you employ some one to prepare for you a suitable drawing and description of its arrangement and forward it to us for further examination. We must rest the case until you comply with the above request.

C. R., of N. Y.—If we published the article about the no circuit to the one wire telegraph, it would be easily overthrown, because it cannot work without a circuit being formed. It would form no objection to the working of a thousand telegraphs, although all their poles were in communication by the moist earth or a lake being part of a circuit for all. This is well known to operators, for every one has command of his own branch.

C. L , of Ct.—The tubular lightning conductor is not new; it has been used for quite a number of years, it is not so good as the solid rod; the solid section is the thing wanted, it is not the surface, although it is the general opinion.

J. B , of Ill.—Water has been fully experimented on long ago, and the results of the two gases fully established: it will not answer for the oxyhydrogen blow-pipe. You can get an apparatus for your experiments from Mr. Kent, of this city.

Money received on account of Patent Office business since July 28:

C. C., of Mass., $30; G. & M , of Mich., $40; S. I., of N. Y., $10; A. F., of Mass., $10; G A. S., of Ind., $30; J. S., of Ct., $50; W. S., of Vt., $50; C. W. R , of D. C., $50; I. S., of N. H., $15; E. W., of Mass., $20.

Specifications and drawings of inventions belonging to parties with the following initials, were forwarded from this office to the Patent Office since last week's sue of the Scientific American:—

I. S., of N. H; E. W., of Mass.; W. B. C., of Mass.; D. G., of R. I.

Back Numbers and Volumes.

In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:

Of Volumes 1, 2, and 3—none.

Of Volume 4, about 20 Nos , price 50 cts.

Of Volume 5, all, price, in sheets, $2; bound, $2,75.

Of Volume 6, all back Nos., at subscription price

New Edition of the Patent Laws.

We have just issued another edition of the American Patent Laws, which was delayed until after the adjournment of the last Congress, on account of an expected modification in them. The pamphlet contains not only the laws but all information touching the rules and regulations of the Patent Office We shall continue to furnish them for 12 1-2 cts. per copy.

ADVERTISEMENTS.

American and Foreign Patent Agency.

IMPORTANT TO INVENTORS.—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents. In the item of charges alone, parties having business to transact abroad, will find it for their interest to consult with us, in preference to any other concern.

MUNN & CO., Scientific American Office,
128 Fulton street, New York.

SCRANTON & PARSHLEY, Tool Builders, New Haven, Conn., have on hand six 12 ft. slide lathes, 28 in. swing; also four 8 ft. do., 21 in. swing, with back and screw gearing, with all the fixtures; one 5 ft. power planer; 12 drill presses, 4 bolt cutting machines, 30 small slide rests; 5 back geared hand lathes, 21 in. swing; 15 do not geared; 8 do. 17 in. swing on shears 5 1-2 feet; 25 ditto with and without shears, 13 in. swing, counter shafts, all hung if wanted suitable to the lathes. Scroll chucks on hand; also index plates for gear cutting. Cuts of the above can be had by addressing as above, post-paid. 47tf

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MANUFACTURE OF PATENT WIRE Rope and Cables, for inclined planes, suspension bridges, standing rigging, mines, cranes, derick, tillers, &c., by JOHN A. ROEBLING, Civil Engineer, Trenton, N. J. 47 1y*

KELLY & CO., New Brunswick, N. J., Foundry and Machine Shop, manufacturers of Stationary Engines, India Rubber Machinory, Mill Gearing and Stove Castings, &c. Articles made in the machinery line to order with dispatch and in the most workmanlike manner. Parties wanting machinery or castings made will be waited on within any reasonable distance. Orders solicited. 47 12*

INDUSTRIAL EXHIBITION.—The "Maryland Institute for the Promotion of the Mechanic Arts," will hold its Fourth Annual Exhibition of American Manufactures, Machinery, &c., in the splendid new Hall, now being finished at Baltimore, from 20th Oct. to 18th Nov. next. Mechanics, manfacturers, and others are cordially invited to deposite specimens of their best productions, in competitions for the Gold and Silver Medals, Diplomas, etc. Steam power, labor, &c., is offered free to despositors. Great care will be taken that fair play shall be shown to all the exhibitors. Those desiring to deposite articles are required to notify the Committee at once, stating the nature of the goods, and the probable amount of room required to display them to advantage. Circulars containing full particulars, rules, &c., with a view of the Institute's New Hall), may be had by addressing the Agent, J. S. Selby, or the undersigned, who will promptly give any other information to those who desire it. See editorial columns of Sci. Am , of Aug 2, 1851. ADAM DENMEAD,
46 5 Chairman Com. on Ex.

1851 TO 1856—WOODWORTH'S PATENT PLANING, TONGUEING, AND GROOVING MACHINE.—Ninety-six hundredths of all the planed lumber used in our large cities and towns continues to be dressed with Woodworth's Patent Machines. Price of the machines from $150 to $800. For rights in the unoccupied Counties and towns of New York and Northern Pennsylvania, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 46 4*

MILLWRIGHT AND MACHINIST.—The undersigned begs leave to draw the attention of all who may have occasion to use machinery to his new and extensive arrangements for furnishing Steam Engines and Boilers of various sizes, mill gearing and wrought-iron Shafting; Log, Circular, Veneer, Scroll, and Slitting Saws, and other machinery connected with a manufacturing establishment, upon the most favorable terms at his works, corner Eleventh avenue and West 29th st. THOS. J. WELLS. 46 4*

WANTED IMMEDIATELY---To go South, one smith, two pattern makers, and one finisher, who must not only be good workmen but possess qualifications which belong to gentlemen, they must be temperate, honest, and faithful. To such, permanent employment and good wages will be given. For particulars, address, post-paid, MUNN & CO., at this office immediately. 46,tf

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WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th, 1850, is, without doubt, the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber, and so great was the favor in which this machine was held at the last Fair of the American Institute, that an unbought premium was awarded it in preference to any other on exhibition. Persons wishing for rights can address, (post-paid) JAMES D. JOHNSON, Easton, Conn., or Wm. WOOD, Westport, Ct. All letters will be promptly attended to. 37tf

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STOP THIEF.---All editors are requested to pass the scoundrel round. The public are cautioned against a pirate who stole the Model of a Match Splint Machine invented and patented by me on the 29th of April, 1851. The said person is trying to sell my machine under secrecy and pretence that it is his own. He being irresponsible and not to be believed, I would advise all to beware of him. I will hold all persons who may purchase the right of this machine from him responsible for the payment. L. L. GILLILAND.
Dayton, O., July 10, 1851. 45 4*

AARON KILBORN, No. 4 Howard street, New Haven, has on hand, and is now finishing, five 14 horse power engines; price, including boiler and all fixtures, $1200; twelve of from 12 to 6 horse-power, all of the most approved patterns, iron bed frame and pulley balance wheel. Galvanized Chain, and fixtures for chain pumps always on hand and for sale. 45 10*

FOR SALE—One 4 1-2 feet Iron Planer, weighing 1,700 lbs., a good machine. Also second-hand Engine Lathes—one a screw lathe. Apply to ELI WHITNEY, New Haven, Ct. 42 6*

MECHANICS' FAIR.—The Middlesex Mechanic's Association will open their first exhibition for the encouragement of the mechanic arts and manufactures in the city of Lowell, on Tuesday, Sept. 16, 1851. The Committee of Arrangements for this proposed Fair, respectfully invite and solicit all persons engaged in the various branches of mechanism, manufactures, science, and art, to present specimens of their various products for exhibition and premium. Ladies are cordially invited to present specimens of their ingenuity and taste. Premiums will be awarded as the articles presented may merit. Articles for exhibition should be sent on or before Sept. 10th. For more particular information or copies of the circular, address (post-paid) J. A. Beard. Esq., Supt., Lowell, Mass. By order, OLIVER M. WHIPPLE, Chairman.
M. C. BRYANT, Sec'y. 40 10

LEONARD'S MACHINERY DEPOT, 109 Pearl st. 60 Beaver, N. Y.—The subscriber is constantly receiving, and offers for sale, a great variety of articles connected with the mechanical and manufacturing interest, viz., Machinists' Tools—engines and hand lathes, iron planing and vertical drilling machines, cutting engines, slotting machines, bolt cutters, slide rests, universal chucks, &c. Carpenters' Tools- mortising and tennoning machines, woodplaning machines, &c. Steam Engines and Boilers, from 5 to 100 horse power. Mill Gearing,—wrought iron shafting, brass and iron castings made to order. Cotton and Woolen Machinery furnished from the best makers. Cotton Gins, hand and power, and power presses. Leather Banding of all widths, made in a superior manner, from the best oak tanned leather, Manufacturers' Findings of every description—bobbins, reeds, shuttles, temples, pickers, card clothing, roller cloth, potato and wheat starch, oils, &c. P. A. LEONARD. 33tf.

PATENT CAR AXLE LATHE.—I am now manufacturing and have for sale the above lathes: they will turn and finish six sets per day, weight 5.000 lbs., price $600. I have also for sale my Patent Engine Screw Lathe, for turning and chucking tapers, cutting screws, and all kinds of common job work; weight 1500 lbs., price $225, if the above lathes do not give good satisfaction, the money will be refunded on the return of the lathe, if within six months. J. D. WHITE,
3213* Hartford, Conn.

GREAT REDUCTION IN PRICE.—The most valuable book of the day, containing domestic and medical recipes, rules with regard to the recovery and preservation of health, an account of the different medical theories of the day, useful tables, &c., entitled "THE GRAEFENBERG MANUAL OF HEALTH." It is complete in one volume of seven parts, and is beautifully printed upon fine paper, in a convenient form of 300 pages. The immense success which has attended the sale of previous editions, has warranted a reduction in the price of this (the 7th) edition, from 50 to 25 cts. per copy. Any number of copies, from one upward, will be forwarded upon the receipt of the money, (post-paid). Address THE GRAEFENBERG COMPANY, 214 Broadway, N Y., or this Office. 38tf

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MORTISING MACHINE.—Dear Sirs: I received the Portable Mortising Machine about 3 weeks ago: I have used it, and am very well pleased with it. It is the best plan of a machine of the kind I have ever seen. W. R. McFARLAND.
Nashville, Tenn., June 22, 1851.
The above machines are for sale by MUNN & CO., price $20—boxed and shipped. 42 tf

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WANTED.—A situation is wanted by a person capable of planning and constructing furnaces for smelting iron ore, or erecting rolling mills. He is an experienced mechanic, thoroughly conversant with the iron business, and would like a permanent situation in some of the Southern States. Address M. E., Dover, N. J. 45 10*

LAW'S PLANER FOR PLANK, BOARDS, &c., is now attracting much attention on account of its effectiveness, the excellence of its work, its simplicity, and consequent economy. Machines are now in operation in Brooklyn, New York City, and at various points South and West. Rights or machines for sale by H. LAW, 23 Park Row. 45 tf

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WATTS & BELCHER, Manufacturers of Steam Engines, Lathes, Planing Machines, Power Presses, and Mechanics' Tools of all descriptions: Washington Factory, Newark, N. J. 38 13*

PALMER'S ARTIFICIAL LEGS.—Manufactured at Springfield, Mass., and 376 Chestnut st, Philadelphia, by Messrs. Palmer & Co.—All orders from New York and New England must be made to Palmer & Co., Springfield, Mass.—"I have examined carefully the Artificial Leg, invented by Mr. B. F. Palmer; its construction is simple and its execution beautiful, and, what is most important, those who have the misfortune to require a substitute for a natural limb, and the good fortune to use it, all concur in bearing practical testimony to its superiority in comfort and utility. VALENTINE MOTT.
New York, Jan. 29, 51." 39 6meow*

CHILD'S PREMIUM SAW MILL—To Plank Road Contractors and Lumbermen generally.—The subscriber having obtained a patent for improvements in circular saw mills, by which large timber can be cut with as great facility as small, and with one half less power, and one-third less waste of timber than by ordinary mills, offers mills and rights on reasonable terms. For illustration see Scientific American of March 15th, 1851. O. C. CHILD.
Granville, Ill., May, 26, 2851. 39 9eow*

CLOCKS FOR CHURCHES, PUBLIC Buildings, Railroad Stations, &c.—The undersigned having succeeded in counteracting, effectually, the influence of the changes of temperature upon the pendulum, and introduced a new regulator, by which great accuracy of time is produced, also the retaining power (which keeps the clock going while being wound) are prepared to furnish Clocks superior to any made in the United States. Ample opportunity will be afforded to test their performance, and those not proving satisfactory, when completed may be rejected. Astronomical Clocks made and warranted equal to any imported.

Glass (Illuminated) Dials of the most beautiful description furnished. Address
SHERRY & BYRAM,
Oakland Works, Sag Harbor, L. I.

"Mr. Byram has established his reputation as one of the first clock makers in the world"—[Scientific American.

"Mr. Byram is a rare mechanical genius"—[Journal of Com. 29 12eow*

A. B. WILSON'S SEWING MACHINE—Justly allowed to be the cheapest and best now in use, patented Nov. 12, 1850, can be seen on exhibition at 195 and 197 Broadway, (formerly the Franklin House), room 23, third floor, N. Y. Rights for territory or machines can be had by applying to GEO. R. CHITTENDEN. 46 2*

CARD.—The undersigned beg leave to draw the attention of architects, engineers, machinists, opticians, watchmakers, jewellers, and manufacturers of all kinds of instruments, to his new and extensive assortment of fine English (Stubs) and Swiss Files and Tools, also his imported and own manufactured Mathematical Drawing Instruments of Swiss and English style, which he offers at very reasonable prices. Orders for any kind of instruments will be promptly executed by F. A. SIBENMANN, Importer of Watchmakers' and Jewellers' Files and Tools, and manufacturer of Mathematical Instruments, 154 Fulton st. 42 3m*

DICK'S GREAT POWER PRESS.—The public are hereby informed that the Matteawan Company, having entered into an arrangement with the Patentee for the manufacture of the so-called Dick's Anti-Friction Press, are now prepared to execute orders for the following, to which this power is applicable, viz.—Boiler Punches, Boiler Plate Shears, Saw Gummers, Rail Straighteners, Copying and Sealing Presses, Book and Paper Presses, Embossing Presses, Presses for Baling Cotton and Woollen Goods—Cotton, Hay, Tobacco, and Cider Presses; Flaxseed, Lard, and Sperm Oil Presses; Stump Extractors, &c. &c. The convenience and celerity with which this machine can be operated, is such that on an average, not more than one-fourth the time will be required to do the same work with the same force required by any other machine.
WILLIAM B. LEONARD, Agent,
25tf No. 66 Beaver st., New York City.

BEARDSLEE'S PATENT PLANING MAchine, for Planing, Tonguing, and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine Shop and Foundry of Messrs. F. & T. Townsend, Albany, N. Y., where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry, or at his residence, No. 764 Broadway, Albany. GEO. W. BEARDSLEE. 43tf

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TO PAINTERS AND OTHERS.—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil Stove Polish. The Drier, improves in quality, by age—is adapted to all kinds of paints, and also to Printers' inks and colors. The above articles are compounded upon known chemical laws, and are submitted to the public without further comment. Manufactured and sold wholesale and retail at 114 John st., New York, and Flushing, L. I., N. Y., by
QUARTERMAN & SON,
35tf Painters and Chemists

MACHINERY.—S. C. HILLS, No. 12 Platt Street, N. Y., dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills Kase's, Von Schmidt's, and other Pumps, Johnson's Shingle machines, Woodworth's, Daniel's and Law's Planing machines Dick's Presses, Punches, and Shears; Mortising and Tennoning Machines, Belting, machinery oil; Beal's patent Cob and Corn Mills; Burr Mill, and Grindstones, Lead and Iron Pipe, &c. Letters to be noticed must be post paid. 38tf

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IRON FOUNDERS MATERIALS—viz., fine ground and Bolted Sea Coal, Charcoal, Lehigh, Soapstone, and Black Lend Facing. Iron and brass moulding Sand; Fire Clay, Fire Sand, and Kaolin; also English, Scotch, and Welsh Fire Bricks—plain, arch, circh, circular, and tower cupola, for sale by G. O. ROBERTSON, Liberty Place, between 57 and 59 Liberty st., (near the Post Office), N. Y. 44 12*

RAILROAD CAR MANUFACTORY.--TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of Railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty and good taste, as well as strength and durability, we are determined our work shall be unsurpassed. JOHN R. TRACY,
39tf. THOMAS J. FALES.

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers, from 1 1-4 to 7 inches in diameter. The only Tubes of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine, and other Steam Engine Boilers.
THOS. PROSSER & SON, Patentees,
16tf 28 Platt st., New York.

LATHES FOR BROOM HANDLES, Etc. We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles, and Broom Handles.

This Lathe is capable of turning under two inches diameter, with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch, and work as smoothly as on a straight line, and does excellent work. Sold without frames for the low price of $25—boxed and shipped, with directions for setting up. Address, (post paid) MUNN & CO.,
At this Office.

WOODWORTH'S PLANING MACHINE. For sale, the right to use this justly celebrated labor-saving machine in the following States, viz.: Pennsylvania west of the Allegheny Mountains, Virginia west of the Blue Ridge, Ohio, Indiana, Kentucky, Tennessee, Wisconsin, Iowa, Missouri, Arkansas, Texas, Louisiana, Florida, Alabama, and Mississippi. For particulars apply to the Proprietor, ELISHA BLOOMER, 304 Broadway. 38 16*

MONTGOMERY MANUFACTURING CO'S Iron Works, Montgomery Ala. Capital invested, $250,000. Steam Engines and Boilers, Reuben Rich's cast-iron centre vent water wheel and iron scrolls complete (the very best wheel in use), sugar mills, saw and grist mill irons of most approved patterns, iron and brass castings of every variety, &c. Orders promptly executed, and upon terms as favorable as can be secured from the best northern establishments. When required, deliveries made (through their agents) at Mobile or New Orleans. Address GINDRAT & CO., Agents. 42 3m

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MECHANICS' INSTITUTE FAIR.—The attention of Mechanics, inventors, and artisans is especially called to the Polytechnic Exhibition, which will open at the rooms, cor. Bowery and Division st., on the 15th of May. Those who wish to exhibit models, machinery, &c., of mechanical skill, and those who would like to carry on, permanently, any mechanical occupation that would be in any way curious or attractive to visitors, are requested to call on the Actuary. Steam power will be provided. Well-lighted, warmed, and airy rooms can be had on liberal terms. As this Exhibition is permanent, an excellent opportunity is offered to skillful mechanics to bring themselves into notice. Articles may be sent in immediately and will be taken care of and insured. Z. PRATT, Prest.; T. C. DODD, Actuary. 34tf

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Scientific Museum.

Scientific Memoranda.

Curious Mechanism.—The following description of a singular machine is given by J. V. C. Smith, in the Boston Medical and Surgical Journal:—

Nothing in Vienna delighted me more than the matchless machinery of the famous Pierre Jaquet Droz, in his androides of self-moving figures. He must have been one of the very highest order of mechanical geniuses. He exhibited three of his automaton children before Louis XV of France, in 1772, who at once raised him to distinction, as far as royal influence could dignify a man of such rare powers. One of these figures writes a beautiful hand—any sentence proposed—by simply guaging a dial plate to a particular order of letters. The second draws the figures of animals on paper, and actually shades off a profile; and the third plays with its fingers on a keyed instrument something similar to a piano. They have all the appearance of life, even to the expression of thoughtfulness. I was permitted to inspect the mechanism at leisure while in motion and at rest; and of all the complicated, inexplicable combination of wheels, pinions, chains, endless screws, cams and levers, on which my eyes ever rested, these are the most perplexing and astonishing. After the inventor had astonished all France and England, he made a trip to Spain, with an expectation of reaping a good harvest in that then wealthy kingdom, but he had hardly commenced the exhibition before the inquisition arrested him and threw him into prison for being in league with the devil. Had it not been for the interest felt in his case by the archbishop of Toledo, who comprehended the nature of the mechanism, and favored his escape, it is thought he would have been burned alive. This sad misfortune ruined his prospects, and stripped him of the avails of his ingenuity. He fled, leaving the automata in the strong box of the holy office, where they remained till Napolean entered, when, by the agency of some friends who knew the history of the transactions, they were recovered and sent to Paris—not, however, until the unfortunate Droz and his equally talented son had been many years in their graves. In the rough handlings to which they had been subjected, the apparatus got out of order, and no one could be found competent to repair them, till by the merest chance the present proprietor, a young German, on learning their history, made a visit of inspection.

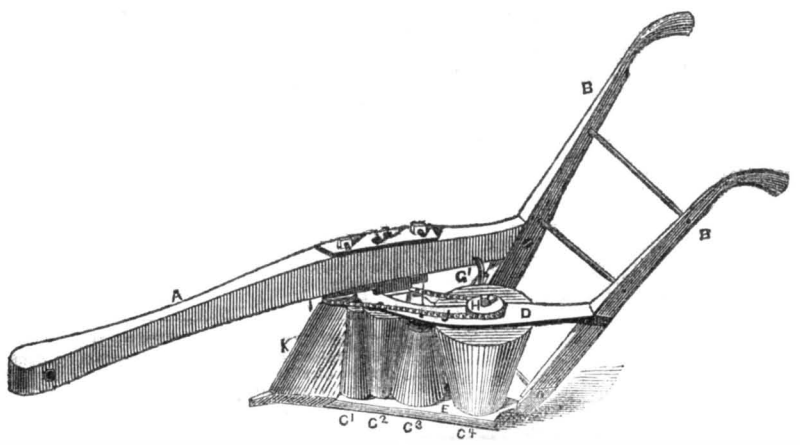
They were considered worthless, and no one, however eminent as a mechanist, dared undertake the restoration. By persevering study, Mr. Henri Martin, the gentleman alluded to, discovered the principle of the movement, and they are now again in motion. He would like much to go to the United States with them, but dreads the idea of crossing a turbulent ocean. Maelzel's celebrated rope-dancers, and even his chess-player, are not to be named in the same day of the month with them. Here is a true mechanical movement, open for the most critical examination of the spectator, while his was a deception. Connected with these figures, Mr. Martin has a miniature hand cart, drawn by an old man smoking. He tugs away awhile, and stops and breathes hard and looks around, and then pulls again at the load with all the naturalness of every day life.

It is the work of a watch maker, who employed his leisure moments in the construction, and realized 500 florins for the ingenuity. I have been more particular in speaking of this exhibition, because it is of so rare a character, and evinces the resources of a mind in the Alpine regions of Switzerland, in the person of Droz, which has not yet had a parallel in the history of inventions.

New Sign Language for Deaf Mutes.—A young gentleman lately presented a thesis for the degree of Doctor of Medicine, at the University of Buffalo, in which he projected a new mode of conversation for the deaf and dumb. It is not unlike the dots and lines used in telegraphic language. He proposes that the fore-finger, for example, striking upon a table, should represent the armature of an electro magnet. Thus a tap or a prolonged pressure would represent a dot or a long mark. Each and all of these movements are to represent letters, which combined make words and sentences. This is but an imperfect outline of Dr. M.'s theory of a new sign of language. It is thought that by its adoption the facility of expression would be vastly increased over the old and ungraceful method at present used. The system is worthy the attention of those who have the training of this unfortunate class.

Interesting Discovery.—It has been announced that M. Mariette, a young French scholar, who was dispatched to Egypt on a scientific mission, has discovered the exact site of the ancient city of Memphis, which has hitherto been a matter of doubt. After careful search he has found a great quantity of Egyptian and Grecian remains, buried under a depth of sand, varying from sixty to forty feet. Among other objects he recognized the Serapeum, a monument described by Strabo. The avenue leading to it was filled with a large number of statues and sphinxes, some of which contained inscriptions. The drawing of the remains, sent to Paris, attracted much attention, and it is understood that funds will be furnished M. Mariette for the further prosecution of his researches.

CONICAL ROLLER PLOW.



This plow is the invention of Mr. George Shelden, of Millersburg, Holmes Co., Ohio, who has taken measures to secure a patent for the same. The accompanying figure is a perspective view of the plow. The nature of the invention consists in applying a series of conical rollers so arranged as to throw off the mould on the land side in place of the ordinary "mould board." There is also a series of scrapers on it for removing the mould that may adhere to the rollers. There is also a blade attached to the sheare, to perform the same duty as the coulter.

A is the beam; B B are the stilts or handles; C' C² C³ C⁴ are the conical rollers set between a bottom and top plate, D E. The journals of the rollers work in holes drilled in said plate. The rollers are not of equal size; the smallest is placed first, the largest last, and the whole four are placed alternately in inverse positions. The roller, C³, is placed a little further out than the other three, and they are all so arranged as to present a curved outline of the same shape as the common mould board. The scrapers spoken of are attached to the upper and under plates, D E. G' represents the end of one of the said scrapers (the rest are not seen). It is attached to the beam, and each one extends from the top to the bottom of each roller, nearly touching the periphery. H is a pulley on the top of the axis of the roller, G⁴, above the plate, D. I is a pulley at the front part of the upper plates. J is an endless chain running round the said two pulleys; K is a blade or cutter attached to the shear by bolts or screws. It has a cutting edge projecting a short distance in front of the side plate, and is employed as a substitute for the coulter. The conical rollers revolve while the plow is moving forward by the pressure of the mould or sward on their surfaces. The object of the rollers is to produce a plow that will operate with less friction in action than one with the common mould board. The use of the endless chain is to prevent the plow from clogging. This plow is adapted for soddy and tenacious wet soil, such as is found on the prairies.

More information may be obtained of the inventor by letter.

For the Scientific American.

Cause of the Expansion of Water by Freezing into Ice.

This has been attempted to be accounted for on the supposition that the force which the crystalline needles exert in arranging themselves, by virtue of their polarity, into regular forms, is the cause of the expansive force manifested in the formation of ice. But, that the fragile crystals formed in a cubic inch of water, which the Florentine Academicians enclosed in a brass globe, and burst the globe by freezing the water in it, exerted a force of 27,720 pounds, which Mushenbroeck calculated was necessary to burst it, is, to say the least, very incredible. Nor is it, indeed, established that such crystals exert any force at all. On the contrary, if a solution of some salts, which is disposed to crystallize, be enclosed in an air-tight vessel, in contact with air confined with it in the vessel, the crystallization of the solution will be prevented till room is given it by opening the vessel and letting out a part of the air.

Whether latent heat set free, unconnected with more substantial bodies capable of receiving and conducting it, expands itself, cannot, perhaps, be ascertained. But one thing is to me very evident, namely, that the expansive force of freezing water and ice by a decrease of the surrounding temperature, must be sought for in the expansion or elasticity of the air always contained in water and ice, in the expansion of vapor formed by the diminution of latent heat, or both, or in the elasticity of latent heat itself. Dr. Dalton has, indeed, proved that vapor arises from both water and ice under all temperatures.

It may hence also be doubted that "water expands both with an increase and diminution of heat above and below the freezing point;" for, if latent heat be eliminated from water while in the act of freezing, there must obviously be a sensible increase of it; and the general rule that all bodies expand with an increase of heat holds good throughout nature's works. Moreover heat (at least sensible heat) is a substance, for it occupies the pores of other bodies, increasing their size or volume.

H. R. Shetterly.

Howell, Livingston Co., Mich.

A Powerful Fire-Engine.

We have received a communication from a member of Nameang Engine Co., New London, Conn., giving us an account of the performance of the Nameang Engine, made by William Jeffers, Esq., of Pawtucket, R. I., for the Company. It threw a horizontal stream 209¼ feet out of 1 1-16 inch nozzle; two inch streams 110 feet high; one 1¼ inch stream 145 feet high; 1½ inch stream 115 feet high, and six streams of 5-8 inch on the roof of a four story building. It has, time and again, manned with 44 men, thrown a stream 20 feet over a flag-staff top at the foot of State street, New London, the said flag-staff top standing 131 feet higher than the engine, which drew the water with a ten feet suction, and played out of 100 feet of hose. Our correspondent was induced to send us the foregoing performances of this excellent engine, by reading our Foreign Correspondent's description of the London Fire Brigade. The Nameang must be a powerful engine.

Hydraulics.

We have collected as much matter as will form one or two more useful articles on this subject. These articles have attracted much attention; they will be excellent for reference in bound volumes of the Scientific American,—no such information can be found in any other work.

LITERARY NOTICES.

The Illustrated American News, published by T. W. Strong, 98 Nassau street, is, without doubt, the most meritorious pictorial journal ever attempted in this country, and we hope sufficient encouragement will be given the publisher to induce him to make it still better. The printing is well done, and, with few exceptions, the engravings are well executed.

Speaking of pictorials calls to mind "Gleason's Drawing Room Companion," commenced several weeks since, in Boston. The publisher furnishes plenty of subject matter, and it is much to be regretted that those who have charge of the printing and engravings do not perform their part of the work in a creditable manner. It is one of the poorest printed sheets in the country, and the engravings are coarse and ineffective. The comparison to the Illustrated London News, is about the same as a lightning bug to the sun. We hope Mr. Gleason will find better artists.

Lectures on the Lord's Prayer—By Rev. W. R. Williams, published by Gould & Lincoln, Boston. For sale by Lewis Colby, 122 Nassau street. This book embraces nine able and exceedingly instructive discourses upon the Lord's Prayer, by Rev. Mr. Williams, pastor of the Amity street Church, this city. They are among the most able and interesting we have ever read or listened to upon the subject, and constitute a valuable addition to theological literature. We can but wish them a wide introduction into the family circle where their influence must prove salutary.

Harpers' New Monthly Magazine, for August, is a fine number. John C. Abbott contributes an interesting article on the Childhood and Youth of Napoleon Bonaparte, illustrated by six engravings. The selections are judiciously made from the best works of our time, and besides, we are furnished with several illustrations after the style of Punch, which are good. This work is sold by the trade generally.

International Magazine, for August, has several beautiful engravings of the most prominent watering places in America, described in a most pleasing and graphic manner. This is unquestionably one of the most sterling serial publications extant, and has already secured a strong hold upon the affections of the reading public.

Dictionary of Mechanics and Engine Work.—No. 35 of this able work, published by D. Appleton & Co., New York, is wholly taken up with Tools for the different branches of Mechanical Art. It is very full on the subject, and is a good number.

MECHANICS

INVENTORS
AND
MANUFACTURERS.

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SIXTH VOLUME OF THE
SCIENTIFIC AMERICAN.

The Publishers of the SCIENTIFIC AMERICAN respectfully give notice that the Sixth Volume of this valuable journal, commenced on the 21st of September last. The character of the Scientific American is too well known throughout the country to require a detailed account of the various subjects discussed through its columns.

It enjoys a more extensive and influential circulation than any other journal of its class in America.

It is published weekly, as heretofore, in *Quarto Form*, on fine paper, affording, at the end of the year, an *ILLUSTRATED ENCYCLOPEDIA*, of over FOUR HUNDRED PAGES, with an Index, and from FIVE to SIX HUNDRED *ORIGINAL ENGRAVINGS*, described by letters of reference; besides a vast amount of practical information concerning the progress of SCIENTIFIC and MECHANICAL IMPROVEMENTS, CHEMISTRY, CIVIL ENGINEERING, MANUFACTURING in its various branches, ARCHITECTURE, MASONRY, BOTANY,—in short, it embraces the entire range of the Arts and Sciences.

It also possesses an original feature not found in any other weekly journal in the country, viz., an *Official List of PATENT CLAIMS*, prepared expressly for its columns at the Patent Office,—thus constituting it the "*AMERICAN REPERTORY OF INVENTIONS.*"

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Any person who will send us four subscribers for six months, at our regular rates, shall be entitled to one copy for the same length of time; or we will furnish—

10 copies for 6 mos., $8 | 15 copies for 12 mos., $22
10 " 12 " $15 | 20 " 12 " $28

Southern and Western Money taken at par for subscriptions.

PREMIUM.

Any person sending us three subscribers will be entitled to a copy of the "History of Propellers and Steam Navigation," re-published in book form—having first appeared in a series of articles published in the fifth Volume of the Scientific American. It is one of the most complete works upon the subject ever issued, and contains about ninety engravings—price 75 cents.

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